The Canadian
Medical Association Journal

Vol. XVI TORONTO, FEBRUARY, 1926 No. 2

An Address
ON
EPIGASTRIC DISTRESS: FUNCTIONAL CAUSES AND TREATMENT

ALEXANDER McPHEDRAN, M.D., LL.D.

Emeritus Professor of Medicine; University of Toronto

THE frequency of the occurrence of epigastric and often more widespread discomfort, with or without acidity, makes its consideration not inopportune. Those of nervous temperament are the most frequent sufferers. Many of them are over-anxious and energetic regarding their duties, and therefore liable to worry. They may be subject to these discomforts in varying degrees and frequency from puberty or even earlier. While some may become less efficient, many maintain their activity until late in life. The most common cause of this distress is spasm of the stomach excited by air imprisoned by a spasm of the œsophagus and pylorus. If the œsophagus relaxes or, as it more frequently happens, is forced by increased gastric contraction, some air is belched, resulting in relief, but air is usually swallowed again at once and the distress recurs. The alternations of belching and swallowing may recur in rapid succession. A man seen many years ago could not utter more than two or three words in succession without belching. On close observation he was seen to swallow at once after belching. A sharp "stop that" so startled him that he did so at once and that part of his trouble ceased.

Epigastric distress is usually attributed to high gastric acidity. But high acidity may and does occur in robust persons who "do not know they have a stomach." They are usually large eaters of all kinds of food, and have no discomforts although the acidity is very high, while those who suffer may have a low acidity so that acidity is relative. The discomfort depends on the irritability of the gastric nerves, or rather in their centres in the spinal cord. As the gastric mucous membrane is not supplied with sensory nerves, the distress must arise from spasm excited by the irritable spinal centres. Gastric acid secretion in normal conditions is constant. It occurs even in a portion of the stomach which has been isolated from the main body, if the pneumogastric nerve is intact.

Acidity depends on the pneumogastric nerve which if irritated will cause excess secretion, and this in turn frequently excites the spinal centres and induces gastric spasm as proved by the prompt relief afforded by bicarbonate of soda, magnesia or other antacid.

As it is in persons of nervous temperament that the irritability of nerve centres is greatest, it follows that in them the pneumogastric and spinal centres are most easily stimulated, hence the ease with which relative excess in acidity induces spasm. This accounts for the frequency of epigastric discomfort from early life, In fact the condition is often inherited having existed in successive generations. They are usually of spare habit and rarely increase much in weight even on a liberal diet and relief from anxiety and a protracted holiday during which the discomfort usually disappears and vigor increases.

Many cases are due to chronic focal diseases within the abdomen, especially of the gall bladder, appendix, and of the stomach itself and duodenum as chronic ulcer. They all increase the irritability of the spinal and pneumogastric centres and cause marked gastric symptoms.

XUM

This fact was well illustrated in the case of a young physician who had suffered much for years. There was decided tenderness in the right iliac fossa and right epigastrium. The appendix was evidently diseased and probably the gall bladder or the duodenum. The appendix was removed and through the opening the gall bladder and duodenum examined, no sign of disease being discovered. The result was complete and permanent relief.

It is of the first importance that a searching examination be made not only of the appendix and gall bladder, but of the duodenum and stomach itself, then resorting to x-ray aid. It is not to be forgotten that in many cases a definite diagnosis can be made without x-ray assistance. Before the advent of the x-ray, in a marked case of gastric distress, probably due to local disease, it was only after repeated examinations that a definite and persistent tenderness was found in the right costoxiphoid angle by pressing the finger very high upwards after a deep inspiration. An operation was done and a chronic duodenal ulcer found; permanent relief resulted. This is quoted to emphasize the importance of thorough examination, especially when reliable x-ray assistance is not available. An inefficient x-ray too often misleads and is therefore worse than useless.

Eye strain is not a rare cause; as may be also diseased ear, teeth and tonsils. In all these cases the symptoms are "referred" to the stomach, not directly, but through the irritated pneumogastric and spinal centres. Disease of the pelvic organs may be a cause on account of the intricate and widespread sympathetic relationships.

Frequently there is a consciousness of the action of the heart, with irregularity, premature ventricular systoles being the most frequent. Increased salivary secretion is frequent. In a recent case there is some nausea, at times with a sudden copious flow of saliva which being swallowed at once relieves the discomfort.

The following illustrative case was seen recently. A man forty-five years old, had been troubled with epigastric distress, often with pain, since his earliest recollection. He had a growing business requiring close attention and causing a good deal of anxiety. He was well nourished and of good colour. His distress increasing, an examination including x-ray was made but no sign of local disease was found. He was seemingly unwisely advised to have gastro-enterostomy done. Coming for further advice, he was examined carefully without signs of local disease being found. This fact, the long history of trouble and the maintenance of nutrition indicated a functional cause. He was therefore advised to regulate his diet, excluding all foods chiefly starch such as potatoes, white bread, sugar and sweets of all kinds; to take whole wheat or brown bread, plain or toasted, butter, greens and other low carbohydrate vegetables, chicken or lamb at dinner; whitefish at lunch, salad at one or both; fruit for dessert and not more than one cup of hot water or glass of water at each meal; and an hour before each meal half a pint of water with fifteen to twenty grains of sodium bicarbonate, also at bedtime. He was advised to have a ten grain cachet of magnesia in his pocket to take if discomfort threatened. He was advised to retire early to bed and take a holiday as often as possible. He was asked to lessen anxiety and to banish worry as his worst enemy.

In those in whom disturbed digestion and discomfort begin in mid or later life, the symptoms develop slowly and irregularly. There may be increase of weight with lack of vigor. Flatulence, both gastric and intestinal, is constant, even in periods of improvement. Constipation is intermittent if not persistent. Appetite varies as does discomfort after the meals. If distressing there is gastric distension from the swallowed air, relieved from time to time by belching. The heart's action may be disturbed, often with pain in the lower part of the left chest and sometimes extending into the left arm; it may prove to be a definite angina pectoris. In two women past middle age, at present under treatment, the first had had marked precordial and arm pain. Her blood pressure has been up to 210/110; hæmoglobin low, about 70; weight 180; abdomen large, flabby and flatulent, both gastric and intestinal. In the second case, anginal attacks have seldom been marked by severe pain, but she has at times sudden attacks of weakness with faintness during which the heart sounds are feeble, the pulse very small and easily compressed; apparently painless anginal attacks. Ordinarily her systolic pressure is 120 m.m. or less. In both cases, the urine varies in quantity and specific gravity, but contains no abnormal ingredients.

The first had led an active social life and therefore lived too freely. Her duties became arduous

and anxious in caring for an encumbered business left by her husband, just deceased. Her weight increased slowly, the abdomen growing more full and flatulent. Palpitation occurred from time to time and a few years later anginal attacks, the pain being in the mid- and lower part of the præcordium and below the mammary area and extending to the upper arm. The attacks were marked but not extreme. Gastric and intestinal flatus had been troublesome for probably some years, growing in degree, necessitating an increasing size of dress, due partly to increase in weight but more to flatus, irregular bowel action and loss of tone of the abdominal muscles. No doubt there was a gradual rise in blood pressure, especially the systolic, the relative lowering of the diastolic from loss of tone of the heart and, more still, of the arterial system, necessitating a rising systolic pressure and stronger action of the heart to maintain circulation at rest and with moderate activity; greater activity caused dyspnœa.

The second case was the mother of five children, active in daily duties, which proved too heavy a burden. Two years ago, while away on a holiday, she had a severe gastro-enteric attack due to an uncertain cause, followed by persistent weakness and abdominal distension, often great at night, with, at times, swelling of the face and extremities. Cardiac weakness required rest in bed most of the time.

In both these cases, discomfort was not marked in the epigastrium but rather more general. That there was œsophageal-gastric spasm was evident by the occurrence of belching on sitting up. Anginal attacks occurred as described, most marked in the first patient; in the second, the attacks were usually without pain but with great prostration, pallor, feeble heart action, and very small soft pulse—doubtless painless angina pectoris. In both, complete relief has followed treatment of the gastro-enteric system.

Walter Verdon, F.R.C.S., advances the theory that œsophageal-gastric spasm is the exciting cause of angina pectoris. He makes out a strong case in support of the opinion. He points out that the attacks are relieved, at least nearly always, by the belching of gas, and that in many cases no signs of disease of the heart or aorta are found at necropsy. The theory calls for careful consideration. At least it must be true in some cases.

Œsophageal-gastric spasm may also be excited by angina pectoris due to cardiac disease as the irritability of the cardiac centres in the spinal cord may and usually does extend to the centres related to the œsophagus and stomach. In this event the belching of gas would relieve the pain.

About three years ago, a woman who, owing to an attack of angina pectoris, had been kept in bed for some months was seen by me; her heart appeared to be quite healthy, but the gastro-enteric tract was very flatulent, her bowels irregular, and her appetite variable. Appropriate treatment restored general well-being and she has remained well since.

Treatment in all these cases called for relief of the spasm. For that purpose about fifteen grains of soda or more in half a pint of water was given an hour before each meal to lessen acidity and flush out the stomach contents; the water at the same time promoting the excretion of waste products in the blood through the kidneys. The bowels required to be moved efficiently but without purging; for that purpose a tablespoonful or two of clean bran in a little cereal and sufficient cream was given each morning, also an ounce of liquid petroleum shortly before breakfast, later this amount was lessened as indicated. The diet was restricted. For breakfast besides the cereal as specified, a small portion of whole-wheat or brown bread, toasted or plain, with a fair quantity of butter. For lunch, a moderate service of a white fish with bread, green vegetables, salad and grapefruit; and for dinner, chicken, sometimes lamb, with low carbohydrate vegetables, salad, and grapefruit for dessert. Not more than a small cup of liquid was allowed at each meal, cold or hot water, the latter with a little cream. The aim was to reduce the stimulus to gastric secretion and, in the case of the two women, to reduce weight. For the man, a fairly liberal diet was taken as his weight was not too high and he was actively engaged in business. Tea, coffee, stimulants and condiments should not be taken as they are all irritants to the stomach.

The result was gratifying. The man was quite relieved as long as the water was continued; if omitted, the symptoms recurred. It will be well to repeat his examination especially the x-ray part. No evidence of disease being found, he should persevere with treatment, taking a little magnesia or soda if discomfort threatens.

XUM

Recreation and a holiday should hasten recovery.

In the case of the first woman, improvement has been slow but progressive. Systolic blood pressure has fallen to 160 or less. The diastolic has fallen in greater ratio; it keeps the systolic higher as the cardiac systole is stimulated to maintain efficient circulation through relaxed arteries. Her weight has fallen steadily, now below 160, and the abdominal wall is of much better tone making it necessary to take in the dresses several inches. Lately her strength has increased rapidly so that now she takes an active part in her household duties although to reduce weight her lunch is reduced to a salad. The second woman has improved even more.

No doubt, this treatment will not be effective in all cases. Strontium bromide, tincture belladonna and similar remedies may be added with benefit. In Case two there was marked tenderness in the lower cervical and upper half of the dorsal part of the spine on the left side. A cantharidal plaster was applied until blistering was produced, it relieved the pain in the lower left chest and arm.

In all such cases the psychical condition should have careful attention. Assurance of recovery may of itself relieve the symptoms, as proved in the following instance. A woman was so greatly distressed with epigastric pain, made worse even by drinking water, that she was afraid she would not be able to go on a long tour ten days later. It was evident that the pain was due to a functional cause. She was assured that she could go if she carried out instructions punctiliously. She was ordered to bed under good nursing, to take the food given her without thinking of her stomach, and go to the toilet exactly half an hour after breakfast without even remembering her constipation. A full breakfast was ordered, which she took without pain or discomfort; and the other meals followed in the same way; the bowels acted well without any drug. Her weight which was very low, increasd a pound daily and she went on her three months tour comfortably, returning home in excellent health. Her full confidence of success and the strong desire to be fit for her tour were at the foundation of the result. Such assurance of mind is often impossible to secure even with the most confident statements.

Present-Day Surgical Treatment of Diseases of the Thyroid Gland.—In the Mayo Clinic, in 1924, there were 1,928 operations on 1,725 patients with goitre. Ten patients died, a mortality by operation of 0.51 per cent and by case of 0.58 per cent. There were 677 patients with goitre unassociated with hyperthyroidism, with no deaths; 368 patients with hyperfunctioning adenomataus goitre, with four deaths (1.08 per cent), and 741 patients with exophthalmic goitre, with six deaths (0.8 per cent). This extremely low mortality rate achieved by present-day surgical treatment of the thyroid gland, according to John deJ. Pemberton, Rochester, Minn., was made possible by the perfection of operative technique and the discovery of means of controlling hyperthyroid crises. The employment of the multiple-stage operation in selected cases, and refinements in management designed for the protection of the patient resulted in a tremendous reduction in the operative mortality and served to establish firmly the surgical treatment of exophthalmic goitre. However, on account of the failure to eliminate the hyperthyroid crises completely, and because of the obvious objections to the multiple-stage operation, this method left much to be desired. The proper administration of iodin to patients with exophthalmic goitre has completely controlled both the spontaneous and the postoperative hyperthyroid crises. The influence of iodin on the surgical treatment of exophthalmic goitre is shown by the following clearly proved facts: 1. The convalescent period has been definitely shortened. 2. The necessity for multiple operations has been greatly decreased. 3. The limits of operability have been widened. 4. The mortality has been further reduced. The problem presented by the patient with hyperfunctioning adenomatous goitre is one of procrastination, and the hope of its solution lies in the education of the public to the fact that all nodular goitres are potentially dangerous and should be removed unless the patient is kept under periodic medical observation.—*Jour. Am. Med. Ass.*, Dec. 12, 1925.

An Address

ON

CARCINOMA OF THE LARGE BOWEL*

FRANCIS A. C. SCRIMGER, B.A., M.D., V.C., F.A.C.S.

Assistant Surgeon, Royal Victoria Hospital, Montreal

THE campaign which has been instituted in recent years to teach the public to bring their ills to the knowledge of the physician early, involves with it a responsibility on the part of the medical practitioner to recognise cancer early when it is brought to him and to reassure the frightened patient by a definite negative opinion if such is justified.

I bring you no infallible test for such an opinion in regard to cancer of the large bowel; but a study of the life histories in a group of eighty-eight carcinomata of the large bowel from caecum to rectum has been full of interest to me, and a conception of the early stages of these growths based on these histories taken from records of the Royal Victoria Hospital, Montreal, differs so radically from that given in our books that I venture to quote from three of the more commonly used books or systems of surgery to illustrate the prevailing ideas on the subject.

One states that the onset is insidious, occasionally acute. Usually there is developed a slowly increasing cachexia with loss of weight and strength, and a condition of constipation alternating with a diarrhœa most usually foul and containing much mucus and blood. A tumour is palpable in the majority.

A second that symptoms are at first vague in the extreme: pain, constipation and diarrhœa; a discharge of mucus may be noticed in the stool, and the patient's condition begins to fail.

A third that when the tumour manifests itself in the early stages the symptoms are usually those of irritation of the bowel. It may be noticed that the patient is losing strength; soon he begins to suffer from recurring attacks of a spurious diarrhœa, with constipation; a condition which is very characteristic of cancer of the colon, and should lead to a systematic examination of the abdomen. The stools will be found to contain blood.

That a serious consideration of the early symptomatology of cancer of the large bowel is worthy of notice is evidenced by the frequency with which it is seen in our hospitals, and the relative frequency with which it is met in the large bowel as compared to other parts of the intestine. Cancer is rarely found in the small intestine. In the large intestine by far the greater number of cases are met with in the sigmoid and rectum; a few only in the transverse colon and a few in the caecum. Horte's figures of 291 cases of cancer of the colon show 47 caecum, 22 transverse colon, 31 splenic flexure and 134 in the sigmoid. Kaufman's 123 cases revealed 36 in caecum and transverse colon, 28 in sigmoid and 51 in rectum.

In rather less than three years there have been in the Royal Victoria Hospital 88 cases of cancer of the large bowel, 7 in the caecum, 4 in the transverse colon, 28 in the sigmoid and 34 in the rectum.

For the understanding of the problem it is essential that we should have a clear, (though not necessarily an elaborate) mental picture of the types of growth found in the large intestine and their usual method of spread. Ewing classifies these as (1) Adenoma destruens, a soft growth showing a definite glandular arrangement which forms gradually a broad ulcerating plaque on the inner surface of the gut. It may give rise to obstructive symptoms by interfering with the normal movements, but rarely causes a true stenosis.

(2.) Stenosing fibrocarcinoma, the scirrhous cancer of other writers. It is frequently spoken of clinically as a ring cancer and shows as a dense hard band often no wider than a heavy

*Read before the Alberta Medical Association. Sept. 18, 1925.

cord tied tightly round the bowel. Its inner surface is hard and white, ulcerated it is true, but not foul nor does it bleed. Many of these give rise to a remarkable shortening of the bowel in its longitudinal direction.

(3.) Gelatinous adenocarcinoma. These are soft fungating tumours of various sizes which show mucoid degenerative changes. They bleed easily, are usually deeply ulcerated and secondarily infected from the contents of the bowel.

(4.) Polypoid or papillary carcinoma derived from or in pre-existing benign polyps and having generally the characters associated with polyp growth. They may not be ulcerated, but they bleed readily.

There are therefore roughly two types, one soft and vascular, which bleeds easily and ulcerates deeply, which is easily infected, and may be expected, once the tumour has reached a considerable size, and the blood supply to the central part has become precarious, to give rise to foul blood-stained mucous stools. The other hard, white, ulcerating superficially only, leaving a fibrous tissue base and giving rise to little or no blood or mucus.

It is a rule to which there are notable exceptions that cancer of the colon and rectum is only moderately malignant. Its course is comparatively slow; extension beyond the wall is late and metastases less frequent than with similar growths in other regions. The growth tends to follow along the submucosal layers for a long time before penetrating the muscular and serous coats. It therefore does not tend to become attached to surrounding structures early. It is surprising to find sometimes how extensive a tumour may be with no evidence of the involvement of the lymphatics. The lymphatic spread except in the anal region follows the blood vessels of the mesenteric system. These cancers show no conclusive evidence of tissue predisposition except when they develop on a previously benign polyp. Cancer not infrequently develops in persons who have suffered for long years from haemorrhoids, but there is no conclusive evidence associating the two as cause and effect.

According to Houser, Verne and others the cancer usually arises in circumscribed areas of mucosa in which the glands enlarge, break through the muscularis mucosæ and extend along the submucosa. The classical description of cachexia, loss of weight and strength, foul, bloody, mucoid stools, alternating constipation and diarrhœa, tenesmus and pain, as the diagnostic signs and symptoms of cancer of the large bowel, is pernicious in its effect on the practitioner who takes it as a guide for the diagnosis of these conditions. That it should be stated, as it is in one largely used system of surgery, that the presence of a foul diarrhœa with blood and mucus in the stools, and the patient showing indications of cachexia, should suggest a thorough examination of the abdomen, places the author of the system in the same category with the man who locked the stable door after the horse had been stolen. Does it do the patient or the medical profession any good to recognize the disease at that stage of development?

In the eighty-eight cases of cancer on which this paper is based, those which gave a history of blood in the bowel movements, often accompanied by frequent stools and sometimes mucus, number fifty seven, of which thirty-four were carcinomata of the rectum; twenty were carcinoma of the sigmoid; one transverse colon and two cæcum. Leaving out the rectal cancers for the moment and considering only the twenty carcinomata of the sigmoid, one of the transverse colon and two of the cæcum which gave a history of blood and mucus in the stools, it was found that eighteen out of the twenty cancers of the sigmoid, the single cancer of the transverse colon and the two cæcal growths were quite inoperable at the time of admission, either from an extension to a surrounding structure, or owing to secondary growths in the lymphatics or the liver. That is to say of twenty-three cases whose symptoms approached those usually described as indicative of cancer of the large bowel, and on which a diagnosis could be made, only two were considered operable. The time which had elapsed since the onset of symptoms varied from three months to five years, and in five cases at least there was a definite history of symptoms from one, two and three years before the appearance of the blood. The thirty-four rectal cases all showed blood in the stool and the earliest symptom was in most cases the loss of blood. Of these, twelve were operable and twenty-two inoperable at the time of admission, usually from an extension of the growth into the surrounding structures; sometimes to secondar-

ies in glands along the mesenteric vessels or in the liver.

There was another group of cases represented by nineteen cases of cancer of the sigmoid, three of cancer of the transverse colon and five of the cæcum in which the history was very different and yet suggestive. The most common history stated that a man or woman of an age between fifty and sixty years, who had previously been healthy began to notice from six months to two or even three years before admission, that there was a rather persistent constipation accompanied by occasional attacks of colicky pain, which were relieved by the evacuation of the bowels. There was then often a period of freedom from pain, sometimes for weeks or months, then a recurrence. These attacks gradually became more frequent and more severe and sometimes culminated in an acute obstruction. In some instances the obstruction became acute at the first attack of pain, three times cases were admitted with a generalizing peritonitis due to perforation of the bowel at or near the growth as the symptom of onset. In no one of this group was there macroscopic blood or mucus in the stool, no foul odour, and no alternating constipation and diarrhœa. Of twenty-three cases giving this fairly consistent and characteristic history, seventeen with cancer of the sigmoid were found to be operable; five were considered to be inoperable, in three on account of fixation to surrounding structures, and in two to extension to the glands along the mesenteric vessels. There were three cancers of the transverse colon all operable and five cancers of the cæcum, four operable, one inoperable. The contrast between the two groups; the one, twenty sigmoid cancers which showed blood in the stools, two operable, eighteen inoperable, as compared to nineteen sigmoid cancers with seventeen operable and two inoperable, is startling. It must dominate our outlook on this class of tumour.

The significance of the presence of blood and mucus in the stools is great, not from the point of view of diagnosis, for that to be of much service must be made earlier, but from the probable operability of the case.

The next point to be clearly enunciated is that the history of the rectal cancer is not the same as that found in the cancer of the large bowel higher up. The earliest or one of the earliest signs in rectal cancers is bleeding, sometimes accompanied by pain and foul discharge, but the early case will often have only the discharge of blood. As a general rule the development of a foul discharge is of great significance, while the presence of macroscopic blood in a cancer above the rectum, is a serious and ominous portent. It will be noted too that the operability of the rectal cancers is not high, only twelve out of the thiry-four cases.

If the knowledge of the pathological picture presented by any disease, its mode of spread and its effect on the diseased organisms, is to be of importance to the clinician, it can only be by making plain to him the onset and subsequent stages of the disease, to enable him to recognize the exact nature of the trouble as early as possible, to estimate its probable cause, to realise its dangers and by so doing allow him to institute such measures for relief or cure as may lie within his means. Above all it should and must force on him, more especially in such a disease as cancer the necessity and often the possibility of a much earlier diagnosis than is generally accepted as satisfactory. Applying this principle to large bowel cancers, we have seen that they divide themselves sharply on the clinical history into rectal cancers and cancers above the rectum. The rectal cancers give almost invariably as their earliest symptom a history of the passage of blood with the stool. The blood is usually bright, fairly fresh and at first neither foul nor accompanied by mucus. There is no diarrhœa, no tenesmus, no loss of weight or strength. Why should there be, when it is understood that cancer of the rectum begins usually as a local thickening of the mucosa, which quickly becomes ulcerated, giving rise to a crater-like ulcer with hard raised edges, which bleeds on the slightest trauma and only gradually and comparatively slowly extends round the bowel? As its growth slowly cuts off the blood supply to the centre, it gradually breaks down into a gangrenous, easily infected ulcer and so supplies the foul stinking discharge, so characteristic of the late stages only. When one knows that there are not many conditions other than hæmorrhoids and fissures, both easily recognizable, which will give blood from the bowel in a patient otherwise healthy, it should be possible to diagnose rectal cancers as early as we have an opportunity to see them. In only one case was there any history of the ribbon-like or pencil

stools so largely featured in some books. Where a definite stenosis of the bowel had taken place, the stools were always liquid.

When we examine the histories of cancers of the large bowel above the rectum, we cannot avoid the conclusion that most of the cases in which there is blood and mucus in the stool, and in which diarrhœa and constipation alternate, are inoperable so far as any radical or hopeful operation can be attempted, while in patients whose condition offers a reasonable hope for a radical cure, there is no history of these symptoms. Of this there are, it seems to me, two reasonable explanations suggested by the nature of the growths which occur in these parts.

Ewing's classification already quoted gives in order of frequency, adenoma destruens, stenosing fibrocarcinoma, gelatinous adenocarcinoma, papillary carcinoma, as the types of growth found.

Generally speaking, there are two types, one soft and vascular, giving rise comparatively early to microscopic blood or blood and mucus in the stool; and a firm, fibrous type producing the obstructive group of symptoms.

All or nearly all the patients who show gross blood in the stools with mucus with or without obstructive symptoms, will prove to belong to the adenocarcinoma group; a more active malignant type of tumour, and therefore more likely to have extended widely. Most of the favourable cases, but not all, will be found in the stenosing fibrocarcinoma group because these above all malignant tumours tend to grow slowly and extend late. Some of the favourable cases will be found among the adenocarcinoma group when recognized early for these tumours of the colon grow along the submucosa for considerable periods before breaking through or forming metastases. In deciding the question of operability, it must be remembered that malignant tumors of any portion of the bowel are often surrounded by inflammatory tissue changes which may fix the mass to surrounding structures. These inflammatory changes however, may not represent tumour filtrations, and so a tumour of the sigmoid fixed to the lateral wall may still be operable. Definitely involved glands along the inferior mesenteric vessels or secondaries in the omentum or liver are naturally definite contra-indications to an attempt at radical cure by removal of the growth.

With special forms of examination I am not here greatly concerned for I wish to lay the emphasis on those indications which will lead the clinician to diagnose or suspect the presence of a growth early. The x-ray is without doubt the most notable aid to confirming such a suspicion, but the x-ray will have no chance till that suspicion has been aroused. The greatest faith is to be placed in the barium enema and the evidence to be looked for, either obstruction or filling defects. None the less, the x-ray has been known to fail, as from the nature of the growth we know it may fail to show an early ulcer or any beginning stenosis. Therefore a negative x-ray examination is not exclusive of an early cancer. One such patient we have among our series: A man reported for examination with symptoms suggestive of a possible tumour with negative reports from all examinations. Two years later, he returned and operation revealed now an inoperable cancer of the transverse colon.

Of treatment I will say little, for it is well known to all that in our present stage of knowledge the removal of the growth is the only form of treatment which offers any hope of a permanent cure. I would remind you, however, that cancer of the large bowel is regarded as one of the relatively less malignant forms of growth, and that the histories of the cases on admission indicate that there has frequently elapsed periods of one, two, three, four or even five years since the onset of symptoms which could have led to a diagnosis.

A few points in respect to the operative procedure I would like to elaborate, and if they seem axiomatic to you, they still are of sufficient importance to deserve a reference.

The most favourable cases for cure will undoubtedly be the stenosing ring cancers of the transverse colon and sigmoid. Some of these will be first seen on account of the onset of obstructive symptoms, either an acute complete obstruction or a chronic incomplete obstruction with dilatation and hypertrophy of the bowel above the growth. The removal of the growth should not be attempted at this time. A para-central incision should be made through this, the cause of the obstruction determined, and if due to a cancer in the transverse colon or sigmoid it should be determined whether the growth offers a fair chance for removal or not. In the latter

event a permanent colostomy is all that can be usefully done. In the former, the central wound should be closed and through a small gridiron incision in the right lower quadrant a colostomy is done, using a fair sized tube. Through this the cæcum and colon above the tumour can be emptied and the toxic period of the obstruction tided over. From ten days to two weeks later, through a left side incision the growth in the sigmoid is removed and an end-to-end anastomosis completed. The cæcostomy still acts as a safety valve, protecting the anastomosis. Secondly, end-to-end anastomoses of the sigmoid at the level of the pelvic brim are perilous, from the danger of failure of the suture line owing to the poor blood supply at that point. The superior hæmorrhoidal artery and usually the inferior mesenteric have had to be tied and the anastomoses of the branches from the left colic, with the inferior and middle hæmorrhoidal are not reliable. Thirdly, rarely is it possible to restore the function of the anus in rectal carcinomata more than four inches from the anus. The recovery is I believe shorter and safer when one resigns oneself to a permanent colostomy.

I have made no reference to percentage of cures, for the whole object of my paper has been to show the need for a higher percentage of operability than is indicated in the eighty-eight histories referred to in this paper. Only thirty-eight of these offered sufficient hope for a radical cure, and a few of these were doomed to failure. A higher rate of operability will bring with it a higher rate of cure.

Summary

(1.)—In almost all cases of rectal cancer, the first or almost the first symptom is bleeding from the rectum.

(2.)—Blood in the stools is a late symptom in cancer of the sigmoid, transverse colon and cæcum.

(3.)—There is in a large proportion of cancers of the sigmoid, transverse colon and cæcum, a group of symptoms highly suggestive and sometimes diagnostic of cancer before there is any sign of blood, foul stools, diarrhœa or constipation.

(4.)—Cachexia is not an early symptom of cancer, perhaps hardly a symptom of cancer at all.

(5.)—At present the number of operable cases in this region is far too low.

The Dietetic Factor in the Etiology of Chronic Nephritis.—Two facts stand out prominently in the experimental work that has been done by L. H. Newburgh, Phil L. Marsh, Sarah Clarkson, and A. C. Curtis, Ann Harbor, Mich. In the first place, diets containing excesses of protein produce urinary abnormalities in the omnivorous rat. In the second place, the rate at which evident abnormalities develop is dependent on the amount of protein fed and the length of time the diets are used. These results are believed to justify the statement that protein above certain limits is injurious to the kidneys of omnivorous as well as herbivorous animals. Since protein is absorbed from the intestine as its amino-acids, it was thought possible that information could be obtained by their injection into normal animals. The authors have injected intravenously into normal rabbits and puppies twelve of the amino-acids that result from the digestion of protein. Of these, no evidence of injury was obtained from glycin, alanin, phenylalanin, glutamic acid, leucin and arginin. Of the remaining six, aspartic acid was injurious to the kidneys of rabbits, but not to those of dogs, whereas lysin, histidin, cystin, tryoson and tryptophan gave unequivocal evidence of renal damage as the result of their injection into the circulation of both rabbits and dogs. In the cases of the last three, in particular, not only were marked urinary abnormalities obtained, but also the microscopic examination of kidneys showed extreme parenchymatous injury. It is quite evident that excess of protein is a contributory factor in the etiology of chronic nephritis. For example, focal infection alone might not seriously damage the kidney. Excess of protein alone might not seriously damage the kidney.—*Jour. Am. Med. Ass.*, Nov. 28, 1925.

XUM

An Address

ON

SOME CASES OF PYREXIA WITHOUT PHYSICAL SIGNS*

SIR THOMAS HORDER, BART., M.D., F.R.C.P.

THE title of my lecture is perhaps chosen more because it is trite than because it approaches to an exact description of the cases I have in mind. It would be more accurate to say pyrexia without adequate signs and symptoms. I say this in order that you may be familiar with the type of case with which I am going to concern myself. It is a very common and very important type of case, one which taxes our resources to their utmost. It is important because we never know whether the condition underlying an obscure pyrexia is going to turn out to be trivial, or very serious. It taxes our resources because it is very difficult to prove a negative; and when we are asked—as we invariably are by anxious relatives and friends—What, exactly, is it doctor? we are often placed in a position where either we have to manufacture names which do not carry conviction to ourselves, or we have to risk losing the confidence of those who put the question to us by suspending our opinion. An instance of that is the very familiar one—with which I shall not be dealing to-day, but I mention it in passing—of the invasion period of some acute pyrexial illness. We are expected, long before there are any signs or symptoms which are in any sense committal, to say what is the nature of the illness. To the more intelligent we point out that measles before the fourth day is a pyrexial illness and very little else, or that influenza has no strict clinical criteria, that a child may have a pyrexial period of ten days or more before we realise that the cough is becoming rather characteristic of pertussis, and that paratyphoid fever may run its whole course without proof, either clinical or bacteriological, of its true nature. In other words, there are plenty of acute febrile diseases in which it is quite impossible, with our present knowledge, to say what is the nature of the illness unless and until certain symptoms and signs have developed. I am not so much concerned with this group of acute infections this evening as with conditions accompanied by subacute or chronic pyrexia.

I. Most cases of pyrexia without adequate signs or symptoms are due to microbic infection. There is the exception of *the nervous patient*, the neurotic, whose thermo-taxic mechanism is unstable, and who, without infection, may run a mild grade of pyrexia as an expression of this unstable nervous system. This position is queried by some practitioners, and I think the query is a reasonable one, but it perhaps reduces itself to rather a quibble if one says that in this type of patient the pyrexia is really due to some sub-infection by an organism which, in persons with a more stable nervous system, would not show this effect. These cases are a great trial in practice, as you will agree. We feel we cannot afford to take risks. The relatives or friends of these patients bring us charts showing a mild pyrexia lasting week after week; we examine the patients carefully, but we can find nothing adequate to explain the raised temperature. The patients are, however, highly nervous, and they become more and more nervous the longer this pyrexial state goes on and the more numerous the investigations that are undertaken. The longer these patients remain under observation, the more nervously unstable they become.

What is the way out of this particular difficulty? I think the way out depends on the individual case. My own feeling about many of them is, that they will be no worse if they become more definitely ill in order that they may be treated on some proper basis in regard to the diagnosis. I often say quite plainly to them, or (more often) to their responsible relatives, "This is a very unsatisfactory state of affairs. Life cannot be lived without small risks. Are you prepared to take a little risk? You have had very exhaustive and expert examinations, and nothing has been found, except this highly nervous state of the patient. I propose, therefore, to stop taking

* Delivered before the Fellowship of Medicine and Post-Graduate Medical Association on June 9th, 1925.—*Post-Graduate Medical Journal*, Nov., 1925.

the temperature and to start on a system of gradual and encouraging re-education of those toneless muscles and this toneless system, and see what comes of it. I promise you I will interrupt this programme so soon as something develops which can be definitely treated." That is an attitude which I not uncommonly adopt, and in the cases in regard to which due care has been exercised to exclude organic disease, things do not go wrong. If it be true that the proof of the pudding is in the eating, it must be a sound method, seeing that the results seem to justify the wisdom of it, for most cases go straight ahead and get well.

I leave the question of the neurotic who runs a temperature easily by repeating that it matters little whether we take the view that the pyrexia is an expression purely of an unstable nervous system, or whether it is that *plus* the operation of some feebly pathogenic organism. I think the method of treatment is the same and should be undertaken on general lines, not on local or specific lines.

In your presence, Sir,† I hesitate to enlarge on the nervous type of pyrexia when the patient is a child, except to say, from my own experience, that the nervous child "puts up temperatures," as one expresses it, even more readliy than does the nervous adult. The position is not easier, it is, perhaps, more difficult, because in the pyrexial child who has no adequate symptoms and signs for the time being we always have in the background the possibility of that ubiquitous condition tuberculosis, generally glandular. In the case of children who have just had acute illnesses the anxious parents keep on the nurse, and the nurse has to justify her position and goes on taking the temperatures. It is often found that the temperatures are not normal; the thermometer registers a temperature a little higher than immediately after the subsidence of the specific fever—scarlet fever, whooping-cough, acute rheumatism, or whatever the illness may have been. And then the position arises of which I have just spoken. The "dark horse" is tuberculous adenitis affecting a group of glands which cannot be very well, or at least not very convincingly, examined: those in the thorax or abdomen. We had hoped, so far as the thoracic group is concerned, that the radiologist could help us out of this particular difficulty. Perhaps I ought not to say that he has driven us further into the difficulty, but he certainly has not got us out of it, the reason being, I think, that the criteria of the normal in respect of the size of the hilum glands in the child are still lacking. I am not seldom consulted about such cases; often they are the children of doctors, and in most of them the parents have already had x-ray investigations made. Oftimes they were satisfied with the progress of the child up to the time that the x-ray picture was taken; and then the whole household was plunged in a state of gloom because a report was received which was very serious in its significance in reference to the size of the hilum glands. Our trouble, I say, is that we have not got proper criteria. If we had, I think a lot of these cases would be passed as within the range of the normal for a child who has recently had an acute infection, which is likely to cause swelling in these glands. In other words, I think it is too glibly assumed that swelling or enlargement of the bronchial or hilum glands in a child is necessarily due to tuberculosis. But we know clinically that these children do, after a latent period from their recovery from measles, pertussis, and other specific fevers, every now and then develop active tuberculosis. We have only to remind ourselves of the common sequence of events in tuberculous meningitis: measles in January, February spent in convalescence, in March the child was almost fit, in April it was rather slack and not so fit, in May headache, squint, peevishness, and the development of tuberculous meningitis. So long as one is faced with a definite sequence of events of that kind, and not infrequently, it behoves us to be extremely careful before we say in February and March, "This is only the residue of the acute illness and does not mean that the child is tuberculous." I find it is less difficult to deal with the adult who is running a mild degree of pyrexia than it is with a child under similar conditions, and for the reason stated.

I spoke of the nervous type of pyrexia. We are all familiar with the factitious pyrexia which, if one feels generous, one calls neuromimesis, and if one is not, it is labelled malingering, but anyway, some psychosis, whether involving morale or not, which leads to a factitious temperature. I will not go into that, because I have to speak about things which are more important, except to say, as I have hinted, that it is not always a moral or criminal proceeding. One of the most instructive cases of this type that I ever saw was the widow of a medical man who had died of pulmonary tuberculosis. When I saw her she

† Dr. Bernard Myers took the chair upon the occasion of this lecture.

XUM

was imitating most of the symptoms that she had seen in her husband over a long period, and imitating them extremely well. The hæmoptysis, as we were able to show, was of a spurious form, produced by sucking her gums, and occasionally by pricking them. The stuff expectorated was not frothy, though it was pink, it was a watery fluid, such as a person with active pyorrhœa often produces in the early morning. The loss of weight was probably associated with the anorexia and under feeding, and the cough was of the barking kind, which, from its sound and its purposeless character, suggested a nervous origin. When we came to consider the temperature we found that it was only necessary to see that the nurse sat near the bed the whole time that the thermometer was in situ to break up a very marked quotidian intermittent fever.

II. Rather than deal with specific instances of pyrexia due to microbic infection, I will speak of one or two general considerations which are, I think, helpful in dealing with these cases. One line of thought is, that *there are certain situations in the body where infection occurs but often remains "cryptic" for a long time.* The tissue or the organ is deep-seated or is difficult to examine. Among such tissues comes the *endocardium,* which is very important if only for the reason that subacute bacterial endocarditis often shows itself first by the discovery of a pyrexia of unknown origin; the patient has a mild and rather casual illness, the temperature is found to be raised, and the illness, whatever it may be—influenza, catarrh, sore-throat—subsides though the temperature goes on. It turns out to be the pyrexia of a latent subacute infection of the endocardium. You may say there are physical signs, but you will remember that I said I am speaking of physical signs which are not adequate to carry conviction. We are faced with a situation where one morning we feel sure there is a systolic bruit at the apex, and next day we feel sure there is not, and the case drifts on. But there are certain stigmata which are more important than the question whether there is a systolic bruit at the apex, which is not, after all, a very committal thing. There are more committal points which are often overlooked if not borne in mind. For example, there is the complexion of the patient. Some observers are very sensitive to complexions, others are not. The complexion of the subacute endocardial patient is called the *café-au-lait* complexion, and I consider that it is a very good term; it is a curious muddy, greyish appearance, and it is often present very early in the disease. Then certain other stigmata should be looked for, or asked for; petechiæ about the shoulders or neck or elsewhere, which would otherwise be meaningless, but which, in association with this pyrexia, become very significant. Then, most significant point of all—almost pathognomonic in fact—is the appearance, suddenly, of one or more tender reddish spots on the pulp of the fingers or the toes, preceded by pain and followed by a little blueness, disappearing after forty-eight hours or three days, and, at the time of one's examination, nothing of all this may be present. One asks "Have you had any pains at the tips of the fingers?" and often the answer is "Yes." The typist finds she could not use one finger because of tenderness; she thought she must have pricked it with a needle. Equally significant are fleeting pains in the hypochondrium, due to splenic infarction, and red blood cells in the urine, requiring the microscope for their discovery.

The *lymph glands* I have already mentioned in referring to tubercle. But I think that *lymphadenoma* is a disease often overlooked as a cause of obscure pyrexia. I believe that the lymphadenomas—there is probably more than one type of disease going under that name—are more often met with than formerly. And there is this important point about many of the cases one sees, that they are not the frank cases which Hodgkin described and they do not present the picture which he portrayed so graphically. The disease is prone to be more diffuse, that is to say, the lymphadenomatous process is prone to involve deep-seated glands or the lymphoid tissue in the viscera, without obvious glandular enlargement at all. So that, although it is right to scour the patient's body carefully for enlarged glands in any case of obscure pyrexia, we must not say, when no enlarged glands are found, that therefore the disease is not lymphadenoma; we have to remember the liver and spleen and, of course, the hilum glands, and the lung and pleura itself. The first definite physical sign in this type of lymphadenoma may be of pleurisy or of ascites, whilst as yet there are no enlarged glands on the surface of the body.

The *liver* comes under consideration in another sense. It is a large organ, and a mild degree of hepatitis, or even a small abscess in the depth of the liver, may be the actual focus from which obscure pyrexia may arise. There are two types of case which one comes across. One is disease

of the liver following dysentery of the amœbic type, amœbic hepatitis, with perhaps nothing incriminating about either the size of the liver or its tenderness, but there is a history of residence in the tropics, or, more helpful, of actual dysentery. In a doubtful case of that sort, examination of the stools and a trial of emetine are indicated. The other type is that in which the liver is affected by deep-seated suppuration, generally due to *Staphylococcus aureus*. In such a case I have seen pyrexia going on for two months with nothing that could be found as an explanatory condition. Then perihepatitis developed with sudden pain over the liver region.

The *peri-renal tissue* comes into this category of tissues or organs, which are somewhat deep-seated and have to be borne in mind in the presence of an obscure pyrexia; again the infecting orgarism is *Staphylococcus aureus;* in other words, perinephric abscess as the sole expression of general staphylococcal infection is not at all uncommon. The pathology, as you probably know, is that the abscess is pyæmic. The patient is suffering from a general staphylococcal infection which has perhaps not revealed itself until this focus begins to appear in the perinephric tissue. And we know what happens, because the stages are clearly demonstrable. A pyæmic infarct occurs beneath the capsule of the kidney, which infects the capsule, spreading to the perinephric tissue; the kidney seems able to dispose of the small degree of infection in the cortex, but the perinephric tissue, being very lacking in resistance to pyogenic infections, flares up and an abscess forms. If the patient is operated upon and the pus is let out, most of these cases do very well. Recently I suggested exploration of the loin in a boy who had had a temperature of an obscure kind for three weeks; during the third week he was found to be tender in one loin and not in the other. I also thought that on this particular day there was a little surface œdema. We had nothing else to go upon, except that we found on inquiry that he had had a boil on his head six weeks before this illness, and it gave some trouble at school, that is to say, it was not very satisfactorily treated, because the hair was not shaved sufficiently to make a good job of it, though eventually it healed. During the exploration the surgeon said, "There is nothing here." I said, "Are you actually on the kidney?" He replied, "I do not know that I am." He was in the perinephric tissue. Then he pushed his finger further, and he said. "Yes, I think there is something here," and there was a spurt of pus. He had evacuated a small subcapsular abscess which had begun to spread to the perinephric cellular tissue.

Whilst I am speaking of *Staphylococcus aureus* infections I ought to mention *bone* among deep-seated and rather cryptic tissues. We all know from experience the cases of osteo-myelitis occurring in children or young adults. Sometimes it is easy to diagnose with pain and tenderness in a common situation. But there are cases which drift on past the acute stage and it may be some weeks before the abscess becomes manifest, and so we have to search and think of the various parts of the skeleton where osteomyelitic areas may possibly occur.

The *nasal sinuses* come into the group of cryptic organs and tissues. We all search the sinuses for focal sepsis of the chronic type when faced with some toxic condition. In most cases of focal sepsis pyrexia is not conspicuous; but every now and then a case presents itself—and I have just seen one—in which pyrexia is a marked feature. In the case I refer to the sinuses were examined twice, because the patient presented no physical signs but had a headache, the features of which were very suggestive of sinus infection: the headache was referred to the root of the nose, between the eyes and through to the occiput. On the second occasion the laryngologist said, "I feel certain there is something there," but he could not demonstrate anything. The patient got worse, developed rigors and had meningitic symptoms. A second lumbar puncture was done —the first having been negative—and streptococci were demonstrated in the slightly turbid fluid. The patient died. We had a *post-mortem* examination, and found the sphenoidal sinus full of pus, and the body of the sphenoid necrotic. So this was a case of very obscure focal sepsis, which, though we bore in mind the possibility of what turned out to be the actual cause, we could not diagnose.

III. I now pass to another general consideration. There are certain *test drugs* which, I suppose, we all, at times, try in certain pyrexial cases. It is worth while to remember that they exist. Everybody gives quinine to the Anglo-Indian who has a shivering fit and a high temperature, headache, and sweats. Whatever the bacteriologist's report may be, we test the case with quinine, and we say, with Osler, that a fever of regular type which does not yield to quinine is

not malaria. There are other test drugs. I spoke just now of emetine; that is a good test drug for dysenteric or post-dysenteric pyrexial conditions—¼ to ½ gr. hypodermically twice a day. The assumption—not so complete as in the case of malaria—is that we are not dealing with an active amœbic dysentery infection if emetine produces no good result. Sodium salicylate as a test for acute rheumatism is another instance. I think it is correct to say that if the efficient exhibition of salicylates fails to bring down the temperature in a patient suspected of acute rheumatism, the practitioner has a big presumption in favour of a pyrexial illness not being rheumatic, always supposing there is no complication such as serous membrane inflammation, for which salicylates are not specific, as they are for uncomplicated rheumatism. I say the *efficient* exhibition of salicylates—not 10 gr. three times a day, given during the day and not at night, but 10 gr. given every two hours during the day and every four hours during the night. If salicylates, given in that manner for three days, make no impression on the temperature, it may be taken as fairly certain that the pyrexia is not due to acute rheumatism.

Still another useful test drug in pyrexial conditions is hexamine. If we suspect coliform infection of the urinary tract, the exhibition of hexamine without results upon the pyrexia in three or four days gives a considerable presumption that the cause is not of this nature. If sodium bicarbonate in full doses also fails, the presumption becomes still greater.

The next test drug I shall mention is novarsenobillon, or neokharsivan, for spirochætal conditions which are associated with pyrexia. I am not thinking now of syphilis, though occasionally one sees pyrexia, even in these days, due to syphilis; but it is not common. The cases I am thinking of are better illustrated by such a disease as *rat-bite fever*, which seems less uncommon that when I described it fifteen years ago That is a relapsing fever which, though it has a characteristic skin eruption, comes into the group of obscure pyrexias. One dose of 0.4 g. of novarsenobillon is generally lethal to the spirochæte of this infection. Therefore, arguing along the same lines, two doses at intervals of five or six days, having no effect on a relapsing temperature, would indicate that the cause was not a spirochæte infection of that type. Lastly, there is santonin. To a child who is running a temperature which is rather baffling and a little odd and meaningless I sometimes give a dose of santonin to see what will happen.

IV. After considering the probable place of infection it is desirable to think of *the probable microbe* causing it. I spoke just now of coliform infection. I doubt if there is anything more likely to be the cause of a very sharp rise of temperature in a patient who, on critical examination, gives no physical signs, than a coliform infection, generally, but not always, of the urinary tract. Most of us are now aware of this, but it is not so very long ago that cases were rather frequently met with in which it was not known that examination of the urine was necessary to decide this point. Little children are very prone to this infection, little girls more than little boys; and babies suffer from it. My youngest case, which I remember very well, was aged fourteen days, a very interesting infant with a characteristic bacilluria. It is difficult to collect the urine of such a patient, but the characteristic smell of the diaper was sufficient, indeed it was decisive. Some practitioners are less sensitive to this odour than others, but it is characteristic, so that sometimes one can make a diagnosis in the dark, or at any rate in a room so badly lighted that one cannot see the urine properly. The patient, at the time of the febrile bout, is very ill, sometimes even stuporose; therefore the question of meningitis or encephalitis often arises. There is generally a foul tongue, but on examination nothing can be made out. Another common feature about the cases is the rapidity with which they recover after the storm is over, whether treated or not treated, and the completeness with which the return to health takes place. I mentioned hexamine as a test drug, but in the very acute cases a more crucial test is by large doses of sodium bicarbonate. I do not remember to have seen a case of the acute fulminant type which did not respond to 20 gr. of bicarbonate of soda every two hours until the urine was alkaline.

Passing from the coliform infections of a local character to general coliform infections leads me to mention the prevalence of paratyphoid, and to remind you that the physical signs and symptoms are much less marked in many of the cases than they are in typhoid fever. We used not to have very much difficulty in making a diagnosis of typhoid fever when that disease was more common than it is now. Even if the agglutinations were not very decisive and even if the bacteriologist did not succeed in getting *B. typhosus* from

the stools, we felt fairly confident from the character of the pyrexia, the pulse, the enlarged spleen, the spots, the patulous abdomen, the râles over the chest, the facies, etc. But paratyphoid is a very different affair. Some of the patients are not even ill, the tongue is clean, there is a little headache at the beginning, but it passes off more quickly than in typhoid, the abdomen seems natural, there is no bronchial catarrh. But we notice the relatively infrequent pulse-rate, which is useful, and the absence of leucocytosis, or the presence of a leucopenia. The cases sometimes relapse, which in itself is a useful fact in the diagnosis, because a continued fever which relapses once or twice makes it extremely likely that the infection is in the typhoid group. The bacteriologist generally reports that it is paratyphoid B, less often that it is paratyphoid A. But I have seen three cases in the last month in which skilled bacteriologists have reported no positive agglutination to *typhosus* or *paratyphosus A* or *B*, and have failed to recover a non-lactose-fermenting organism in the stool, that is to say, no orgarism in this group had been identified. Yet the clinician was able to be quite sure of his diagnosis because the evidence was overpowering.

Consider the evidence in one of these cases. The girl lived for a time in a Paris hotel, and was taken ill fourteen days after she left Paris. (Paris contains at the present time a good deal of paratyphoid.) The significance of both of these facts is obvious. When she was taken ill she was at a theatre, and she said, "Need we stop? It is dull." "Aren't you well?" said her mother. She replied, "I have a headache. "In the morning the headache was much worse. Her temperature was found to be 102° F. The spleen was palpable on the tenth day of the illness. After defervescence by lysis there was a relapse of the fever. One said that she was suffering from a general infection by a member of the coliform group, and though the bacteriologist said it could not be paratyphoid A or B, I was willing to call it a pathogenic coliform bacillus X, and leave it at that for the time being. I feel certain that coliform infections of a general kind are at present rather common. We have been through a period in the last ten or fifteen years, in which coliform infections of a focal kind have been very rife, and perhaps we may now experience coliform infections of the septicæmic type.

V. Neoplasms occasionally cause obscure pyrexia. In my experience they are odd neoplasms; neoplasms which are prone to undergo necrosis and presumably form toxic products as the result of this. Therefore they are not straightforward carcinomata, they are more likely to be sarcomata, and I am sure they are as likely to be benign tumours, such as fibroids. You have seen pyrexia associated with necrobiosis of a large fibroid. As an illustrative case I may mention that last year I was consulted about a very obscure case of pyrexia. The working diagnosis was tubercle of the kidney, and this view seemed to be confirmed at first, when improvement occurred with treatment at a sanatorium and small doses of tuberculin. Tubercle bacilli were not demonstrated in the urine. There were pain and aching in the loin, and there was some doubt about the size of the left kidney. These were all the data there were to go upon for several months. But on coming home to London the pyrexia became higher, the patient wasted, and diarrhœa started. The diarrhœa was very troublesome, and the abdomen was tympanitic. It was then decided to explore the upper left quadrant of the abdomen from the front. It was found that the kidney was large, but it was very firm, and felt more like a tumour than a tuberculous kidney. It was removed, but with great difficulty. It was very adherent, and there were many vessels running into it. It was found that there was a hypernephroma embedded in the kidney as large as my fist, and on opening it the greater part of it was found to be necrotic; it consisted of soft, cheesy material, and that was the only thing found, except that examination of the intestine clearly demonstrated amyloid change. That patient's pyrexia lasted fifteen months. This case shows that obscure pyrexia is sometimes due to absorption of toxic material due to degenerative changes in a neoplasm.

A doctor who was superintendent of the Sunday School in a small village asked one of the boys this question: "Willie will you tell me what we must do in order to get to heaven?" Said Willie "We must die." "Very true, true," replied the doctor, "but tell me what we must do before we die." "We must get sick" said Willie, "and send for you."—*Nova Scotia Med. Bull.*

THE ATOMIC PROCESSES OF DISEASE*

ELLICE McDONALD, M.D., C.M.

Asst. Professor of Gynecology in the Graduate School of the University of Pennsylvania, Philadelphia

LIFE in the human body is dependent upon chemical processes, but vital activities cannot be considered to be governed by the rules of a simple chemical system. There exist factors which modify these chemical processes so that stochiometric (or purely chemical) explanations are not completely satisfying unless qualified. In vital activities, the processes are based upon colloid structure, and life may be defined as a continuance of chemical reactions in a colloid medium. For this reason, surface action is of greatest importance and the reactions of colloids, dependent upon the degree of dispersity, go far to explain the processes of the colloid protoplasm.

Mechanism is, therefore, as important as chemical reaction. Protoplasm, which is the basis of life, is a colloid, and the unit of protoplasm is the cell. The cell is an acid (or less alkaline, p.H. 6.2—6.8) colloid particle, surrounded and contained by a semi-permeable cell membrane, and exists in an alkaline medium (the blood plasma, p.H. 7.40). This arrangement is ideal for bio-electric variation and potential differences across a surface, for the acid cell with its membrane, acts as an electrode reversible to cations. For this reason, surface action is of greatest importance, and Bayliss[1] teaches that enzymes in the human body obey the usual laws of catalytic phenomena, particularly in heterogeneous systems in which the reactions take place at the surfaces of the colloids, and that the reactions are reversible, the equilibrium point being determined by the effective concentration of water. In muscular contraction, for another example, Bernstein[2] has given definite evidence to show that the energy of contraction is surface energy, and that the muscles suffer thermal changes peculiar to surface energy. Many other vital phenomena can be explained upon the same basis.

The functioning cells of the body are controlled and regulated by impulses generated by the cells of other organs, and conducted to and fro by structures specially evolved for this purpose. This is nerve action, and there are in the human body two nervous systems—the conscious or cerebral system and the vegetative or unconscious system (also called sympathetic, involuntary or autonomic). The cerebral system has to do with voluntary control (or willed activity) and the vegetative system has to do with involuntary action or the unconscious organic processes. The vegetative nervous system controls the heart that beats, the stomach and intestines that move and digest, the kidneys that secrete, and all the varied processes of our unconscious life and without our control. This vegetative system consists of two opposed and balanced parts, the vagus and sympathetic divisions. (The vagus part is also called para-sympathetic). The control by the vegetative nervous system is largely effected through its action upon smooth, involuntary, or non-striated muscle in contra-distinction to striated or voluntary muscle which is controlled by the cerebral or conscious system. Smooth, involuntary, or non-striated muscle is very widely distributed in the body, in the pupil, in the heart, blood vessels and capillaries (Rouget cells), in the great organs, stomach, intestine, spleen, etc. The vagus division, for example, makes the heart beat slower and the sympathetic division makes the heart beat faster. The vagus makes the stomach and intestines contract, and the sympathetic makes the stomach and intestines dilate, etc.

In the mechanism of human life and its deviations in disease, there must be considered:—(1) *the application of energy from atoms*, (2) *the colloid character of the protoplasm of the human body* and (3) *the control exercised over these processes by the vegetative nervous system.*

The colloids of the human body are amphoteric (neutral or without potential) until vitalized by electrolytes which give them charge. It is for this reason that the inorganic salts, although comprising only about two per cent of the body weight, are of supreme importance. These determine the potential, so that the relatively acid cell with its semi-permeable membrane, existing in an alkaline medium, is dependent upon external conditions for the various manifestations of life.

*Abstract of paper read by title at Canadian Medical Association, Regina, June, 1925.

Energy production is dependent in these cells upon organization or mechanism and potential differences across a membrane or surface. The energy is the energy of electrons and dependent, as are the properties of elements upon the configuration of electrons, particularly those in the outer layer. Langmuir[3] has shown that it is possible to predict the properties of elements according to the configuration of electrons, and that the tendency to give or take electrons is dependent upon the presence of electro-positive or electro-negative elements, capable of taking or giving electrons. Naturally, our knowledge of these forces is at present limited, but, when in the future, we are able to calculate the force between the electrons and the positive nuclei of the atoms it will be possible to account for all phenomena, physical and chemical, physiological and pathological, by calculating the forces between molecules, electrons and atoms. If these forces are all electrical in their nature, the force holding them together in a chemical compound like NaCL, and the force, binding hæmoglobin, or producing consolidation in pneumonia, are of the same nature, and dependent upon the relation of the electrons to the positive nucleus. Univalent substances, like Na and K, with one outer electron, have an action more like each other in the human body, and antagonistic to bivalent elements, like Ca and Mg, with two electrons in their outer ring.

The cells of the human body act like negative suspensoids, reversible to cations, controlled by the buffer salts, and their potential differences are due to traces of electrolytes, exactly as has been shown by Murkerjee[4] in colloid experiments on negative suspensoids. Murkerjee has also shown that elements have greater or less adsorbability to negative suspensoids in the order, Th> Al> Ba> Sr> Ca> Mg> H> Cs> Rb> K> Na> Li>, and in the human body, the same order, Ca> Mg> K> Na>, Li, holds for the production of acidity, reduction of blood pressure and other effects. The Ca and Mg salts produce acid conditions in the blood (plasma p.H.), urine, stool and other secretions, and the Na and K salts produce alkaline conditions. The Ca and Mg salts stimulate the vagus side of the vegetative nervous system, and the Na and K salts stimulate the sympathetic part. Murkerjee[5] has, indeed, suggested in a recent paper that the results obtained by the biologists upon unicellular organisms are due to this action, and that "at least one of the main causes which is responsible for the ionic antagonism as observed by Lillie, Osterhout, Loeb and Clowes is the effect of the ions on the electrical charge of the dispersed system."

Protoplasmic or vital action may then be crudely represented by the following diagram:—

Nucleus \ electron /	cation \ anion /	electrolyte water	Protoplasmic action or
nucleus \ electron /	colloid \ film /	colloid cell cell membrane	vital processes

However, in the human body, control of processes by nerve action is of importance. The smooth muscle of the human body may be taken as an index of the balance of the vegetative nervous system, and, as the pupil of the eye dilates with sympathetic action and contracts with vagus action, so the greatest mass of smooth muscle in the body, the stomach and intestines, is similarly influenced. It has been found possible by Ludlum and myself[6], by means of x-ray pictures and fluoroscopic examinations of the gastrointestinal tract, to determine the balance of the vegetative nervous system, upon the basis of postural tone and haustral arrangement. We also found that when the blood plasma was more acid (lowered p.H.), there was a tendency to vagus effects and, when the blood plasma was more alkaline, (higher p.H.), there was a tendency to sympathetic effects. These were not only shown in the smooth muscle of the intestine, but upon the heart (blood pressure and pulse rate) and smooth muscle elsewhere. Here, then, was a relation between chemical action and body processes, so that to quote Crozier, the biologist: "typical vital processes obey quantitatively the laws of ordinary chemical dynamics."

The nervous control over the functioning cells of the body is exercised mainly through the vegetative system, which has a double innervation of stimulation and inhibition to smooth muscle and to every organ of the body. This nervous system controls and expends daily three quarters of the total human energy in processes without control of the will. The steady maintenance of the machinery of life is controlled by processes of which we are unconscious. The vegetative nervous system controls circulation, digestion, metabolism and elimination without aid from the cerebro-spinal or conscious nervous system. "Who, by taking thought, can add a cubit to his stature," and who, by taking thought, can increase his growth, make his kidneys secrete better, or alter his metabolism? This is controlled by a nervous system which is a law unto itself and king within its own realm. The vegeta-

XUM

tive nervous system has among its functions the control of the smooth muscle of the body; when the large extent of this smooth muscle and its distribution in the important organs of the body are considered, the great influence of this form of control may be appreciated. The control of the area of the blood vessel capillaries alone (which in a small man amount in area to 120,000 square yards) shows the importance of this unconscious influence, and control of the capillaries is only one function of the vegetative nervous system.

From the influence upon the smooth muscle of the gastro-intestinal tract, it has been found possible by the fluoroscope and x-ray pictures of the postural tone and haustral arrangement to estimate the balance of the two branches (the vagus-sympathetic) of the vegetative nervous system. This balance in health showed a regularity of arrangement of contraction and dilation of the gastro-intestinal tract, particularly in the large intestine where the vagus contracts and the sympathetic dilates the amplitude. The postural arrangement of haustra of the large intestine may be taken, in the absence of drugs and purgatives and under specified conditions, as an index of the vagus-sympathetic balance of the vegetative nervous system. This statement has been checked by many hundred x-ray pictures and by other workers.

In the study of the vagus-sympathetic balance, when there was vagus preponderance, it was found that the hydrogen ion concentration of the blood was increased (p.H. decreased, upon the acid side of the normal p.H. = 7.40): and when there was sympathetic preponderance, the hydrogen ion concentration of the blood was decreased (p.H. higher, more alkaline than p.H. = 7.40). This alteration in the postural tone and haustral arrangement, as an index of the vagus-sympathetic balance, was greater and greater the more the hydrogen ion concentration of the blood plasma deviated from normal, so that it was possible to create a scale of x-ray pictures (Figs. 2-10) of the colon corresponding to specified hydrogen ion concentration. The more vagus preponderance, the greater was the contraction of the smooth muscle of the large intestine and the higher the hydrogen ion concentration. (It will be noted that Sorensen's method of measuring the hydrogen ion concentration makes the nomenclature a little obscure. When the hydrogen ion concentration is higher, the p.H.—Sorensen's figure—is lower and *vice versa*). When the postural tone was less contracted than normal and there was sympathetic preponderance, the hydrogen ion concentration was less (p.H. higher). This rule held generally and in the main with certain very definite exceptions. At menstruation, the ratio was frequently upset for two or three days, but finally would correlate itself again. In a few other cases it failed to correlate, but usually was explained by drug medication (particularly such as veronal, allonal, luminal, etc.). It reacted according to rule after the drugs were removed. Some cases, however, only correlated occasionally and could not be explained. To expect that the correlation would be exactly interpreted is expecting too much, but a correlation table, taken for us by Thurstone, Assistant Professor of Psychology at the University of Chicago, showed that it is possible for the trained observer to translate the smooth muscle posture of the stomach and large intestine into terms of the hydrogen ion concentration of the blood plasma with a very small margin or error.

The vagus-sympathetic balance shows itself not only in the size of the large intestine, but in the rate of change in haustral pattern and in regularity of haustration, an evidence of nerve integration. For example, in morphine, a vagus stimulant which contracts smooth muscle (well seen in the contracted pupil), sympathetic influence is cut down and there is vagus preponderance, the difference in size of the intestine may be hard to judge, but the free sacral innervation (pelvic vagus) shows itself mainly in rapidity of haustral change and choreic irregularity patterns. But generally and in the main, the postural tone is sufficient expression of the vagus-sympathetic balance.

In acid (less alkaline) states of the blood plasma, then, the vagus side of the vegetative nervous system is preponderant, and in alkaline states, the sympathetic side is preponderant. After all, this is only what is to be expected from the experiments of Daly and Clark[7] and Drury[8] Cowles[9] upon the mammalian heart. In acid (acid side of p.H. = 7.40) states of the perfused heart, the rate of the auricle fell and the vagus inhibited the heart; and in alkaline states, the rate increased and the sympathetic stimulated the heart. So that in the intestine, where the vagus stimulates contraction, acid states are vagus preponderance, the opposite from that of the heart.

Here, then, is the striking fact that acid (or less alkaline) conditions of the blocd plasma predispos teo vagus preponderance and alkaline states predispose to sympathetic preponderance with

the far reaching influence of the vegetative nervous system upon all organs, (circulation and metabolism) in these different states. Nerve action can so be connected quantitatively with chemical processes. Our experiments with the various cations, ingested and injected into the human body, showed that the vagus part of the vegetative nervous system was made preponderant by the bi- and tri-valent cations and anions; and the sympathetic part of the vegetative nervous system was made preponderant by the univalent cations like sodium and potassium. This was checked both by the postural tone (smooth muscle reaction) of the colon and the p.H. of the blood. In addition, many experiments by others upon acid-base conditions can be translated in terms of vegetative nervous preponderance. (For example, the experiments of Haldane[10] *et al*, Gamble, Hamilton and Blackfan[12, 13, 14], and Salvesen[11] *et al* in the production of acidosis by calcium and magnesium.)

The conclusion is, therefore, reached that the balance of the vegetative nervous system, as shown in the smooth muscle of the intestine, acts and reacts like the colloid in the chemical experiment, or like the biological experiments upon the single-celled organism in regard to the cations. The univalent cations, Na and K, which increase sympathetic action, increase permeability, conductivity and dispersion of the colloid and act in an entirely different direction to the bi- and trivalent cations, like Ca and Mg, which decrease permeability, conductivity and cause coalescence of the colloid and increase vagus action. The expression of the vegetative nervous system corresponds to the influence of these elements to the action of similar crystalloids upon colloids in biological experiments; so that the inference may be drawn, in certain states of vagus-sympathetic balance, as to the condition of the body cell in general as to permeability, conductivity, dispersion, etc. In sympathetic preponderance, there is increased cell permeability and conductivity and dispersion; in vagus preponderance, there is decreased cell permeability, conductivity and coalescence. It is possible in this way to explain disease and symptoms of disease in terms of cell changes and to supply a scientific working hypothesis based upon the atomic theory for disease processes and medication.

The method consists in the estimation of the vagus-sympathetic balance by the smooth muscle index by means of x-rays of the gastro-intestinal tract and the measurement of the hydrogen ion concentration of the blood by the most approved methods. An index of the patient's metabolic condition can be obtained as in no other way; symptoms are translated in terms of the vegetative nervous system which, in turn, is translated into colloid cell change.

We have found that certain diseases, like tetany, etc., arranged themselves upon one or other side of the vegetative nerve balance, so that it has been possible to represent them in the following schema: See Fig. 1.

Cause	*Mechanism*	*Expression*
Energy from orientation and configuration of electrons in atoms in atoms and molecules	Coalescence of colloid Bi and tri-valent cations and anions produce vagus effects Less cell conductivity Less potential difference Anodal Negative Increased smooth muscle reaction	
Inorganic Salts	Lower pH (higher H-ion concentration in blood)	Most infections Colitis
	Less permeable cell membrane	Typhoid
	Vagus	Diabetes
	Plasma less alkaline	Neurasthenia
Lipoid Solvents	Oxidation	
METABOLISM———	———————————	———*HEALTH*
Hydrogen Ion Concentration	Reduction Plasma more alkaline	
	Sympathetic	Psychiasthenia
	More permeable cell membrane	Deficiency Disorders
	Higher pH (lower H-ion concentration in blood)	Tetany Rickets
Oxidation-Reduction Poise	Decreased smooth muscle reaction	Syphilis
	Positive	Eclampsia
	Cathodal	Respiratory infections (Tuberculosis)
	Greater potential difference	(Pneumonia)
	Greater cell conductivity	Gastric Ulcer
	Univalent cations produce sympathetic effect	Essential Hypertension
	Dispersion of colloid	Œdema

Fig. 1

It has been possible, therefore, to translate manifestations of disease in terms of vagus-sympathetic balance and, with the aid of hydrogen ion concentration estimations of the blood plasma, in terms of chemical processes.

Disease may, therefore, be divided into two great classes: (1) *The vagus preponderant* and (2) *the sympathetic preponderant.* In the vagus preponderant, there are symptoms associated with excess of bi- and trivalent cations and anions, increased hydrogen ion concentration and increased smooth muscle reaction. With these changes must come a decrease of permeability and conductivity in the cell, increased tendency toward coalescence, or condensation of the colloid, acidity and oxidation (electron-taking) effects. In the sympathetic preponderant diseases, there are symptoms associated with excess of univalent cations (or diminution of the bi- and trivalent cations) decreased hydrogen ion concentration and decreased smooth muscle reaction. With these changes must come an increase of permeability and conductivity in the cell, increased tendency toward dispersion of the colloid, alkalinity and reduction, (electron-giving) effects.

This theory has been applied in treatment to various diseases, as gastric ulcer, etc. An example is in essential hypertension, or high blood pressure, which is controlled by the sympathetic part, and is benefited by the sodium-free diet and by the taking of calcium and magnesium salts. (Abstract sodium—add calcium and magnesium). The symptoms of disease may be explained upon the basis of this theory.

Blood pressure is a significant and fundamental process in the human body and its control is dependent upon the vegetative nervous system of which sympathetic stimulation increases and vagus preponderance decreases the blood pressure. Hypertension is a sympathetic phenomenon and all substances which reduce blood pressure are vagus stimulants, such as the calcium and magnesium salts and parathyroid extracts. In the rabbit's heart, Drury and Cowles[16] have found that there was increased rate and conduction (sympathetic effect) with a p.H. = 7.8 (alkaline side), while at p.H. = 7.0 (acid side), there was a slowed rate of the heart. This correlation of the heart action and chemical conditions bears out Crozier's statement that "chemical conditions control the activity of the central nervous tissues" and that these include control of the vegetative nervous system which governs metabolism and body processes. Not only does the degree of hydrogen ion concentration have an influence, but also the special effects of the various salts.

In the study of blood pressure, as a prominent and fundamental manifestation, it is found that the action may be represented in parallel columns. (See blood pressure effects).

Other symptoms of disease may be explained in a similar fashion. Gastric secretion, which is a function of gastric motility, is increased by vagus-effect-producing substances and decreased by sympathetic-effect-producing substances. Temperature, which is a function of water content, depends upon the imbibition of the colloid water and structural changes of colloid. Respiration is very definitely controlled by hydrogen ion concentration and oxidation-reduction poise.

The processes of disease are but deviation from normal protoplasmic processes and these depend upon colloid reactions in an aqueous medium, so must obey the laws of colloid chemistry. In this, the most important principles are surface action, adsorption and disorption, the electrical double layer of Helmholtz, and the effect of the electrical charge of ions. In this must be considered the control of the vegetative nervous system and dis-

BLOOD PRESSURE EFFECTS

Substances which Decrease Blood Pressure	*Substances which Increase Blood Pressure*
Are Vagus Stimulants:	Are Sympathetic Stimulants:
Make urine acid:	Make urine alkaline:
Make blood plasma less alkaline:	Make blood plasma more alkaline:
Bi- and trivalent cations and anions, like Ca, Mg and HCL	Univalent cations like Na and K
Decrease permeability of cell in biological experiments:	Increase permeability of cell
Decrease conductivity	Increase conductivity
Oxidant (takes electrons):	Reductants (give electrons):
Cause greater adsorbability to negatively charged surfaces	Cause less adsorbability to negatively charged surfaces:
Make water-in-oil emulsions:	Make oil-in-water emulsions (Clowes)[18]
Cause solidification of the protoplasm when injected within the cell:	Cause liquefaction of the protoplasm when injected within the cell. (Chambers)[19].

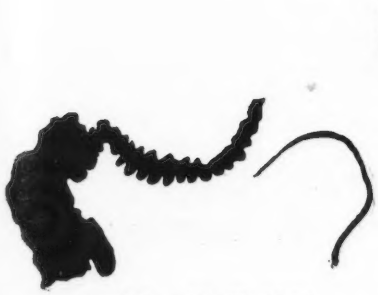


FIG. 2.—Colon with pH of 7.2 in the blood.

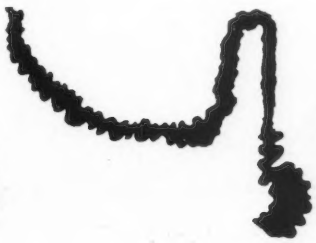


FIG. 3.—Colon with pH of 7.34 in the blood.

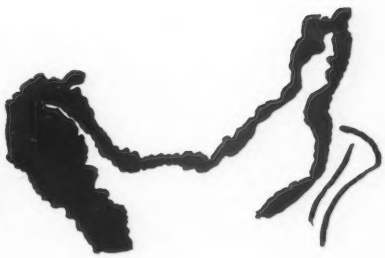


FIG. 4.—Colon with pH of 7.35 in the blood.

FIG. 5.—Colon with pH 7.4 in the blood.

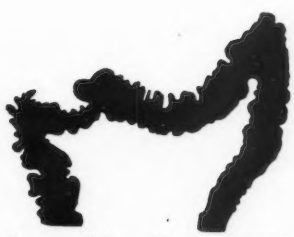


FIG. 6.—Colon with pH of 7.45 in the blood.

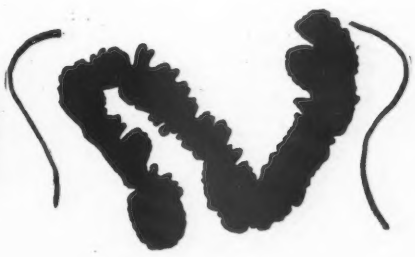


FIG. 7.—Colon with pH of 7.5 in the blood.

FIG. 8.—Colon with pH of 7.6 in the blood.

FIG. 9.—Colon with pH of 7.7 in the blood.

FIG. 10.—Colon with pH of 7.8 in the blood.

ease can be divided into two great classes: (1) The vagus preponderant and (2) the sympathetic preponderant. These classes correspond to alteration in the colloid upon one or other side of the normal bio-electric variation or charge. In classification, the hydrogen ion concentration of the blood and the smooth muscle reaction is of great importance.

REFERENCES

(1) BAYLISS, SIR W. M., The Nature of Enzyme Action, Longmans, Greene & Co., New York, 1925. (2) BERNSTEIN, J., 1908, Uber die Temperaturcoeffizienten der Muskelenergie, *Pfluger's Arch.*, B. 122, S. 129–195. (3) LANGMUIR, I., *Jour. Amer. Chem. Soc.*, 1919, 41, 868. (4) MURKERJEE, J. M., Faraday Society Reports, 1921, p. 103. (5) MURKERJEE, J. M., *Jour. Ind. Chem. Soc.*, 1924, T 2, p. 224. (6) LUDLUM AND McDONALD, The Mechanism of Disease, *Medical Journal and Record*, 1925, May 20. (7) DALY AND CLARK, *J. Physiol.*, 1921, lix, 369. (8) DRURY AND COWLES, *J. Physiol.*, 1924, lix, 11. (9) COWLES, *J. Physiol.*, 1924, lix, 361. (10) HALDANE, HILL AND LUCK, *J. Physiol.*, 1923, vii, 301. (11) SALVESEN, HASTINGS AND MCINTOSH, *J. Biol. Chem.*, 1924, June. (12) GAMBLE, ROSS AND TISDALL, *Amer. J. Dis. Child.*, 1923, xxv, 455. (13) GAMBLE AND ROSS, *Amer. J. Dis. Child.*, 1923, xxv, 470. (14) GAMBLE, BLACKFAN AND HAMILTON, *J. Clin. Invest.*, 1925, ap. (15) CROZIER, W. J., *Proc. Nat. Acad. Sciences*, 1924, x, 11, 461, November. (16) DRURY AND COWLES, *J. Physiol.*, 1924, 59, xli–xliii; COWLES, *J. Physiol.*, 1924, 59, 361. (17) CROZIER, W. J., *J. Gen. Physiol.*, 1924, vi, 711; vii, 123; vii, 131; vii, 151; vii, 189 and elsewhere. (18) CLOWES, *J. Phys. Chem.*, 1916, xx, 5, 407. (19) CHAMBERS AND RESMKOFF, *Proc. Soc. Exp. Biol. and Med.*, 1925, xxii, p 320 and 1925, xxii, p. 386.

SCLERODERMA AND ITS TREATMENT BY RADIUM

A Preliminary Report

Dr. Hugh MacKay, M.D., C.M., F.A.C.P.

Assistant Professor of Medicine (Dermatology) Faculty of Medicine, University of Manitoba,

Dermatologist: Winnipeg General Hospital

SCLERODERMA, as the name implies, is characterized by a hardening and immobility of the skin and the subcutaneous tissues in the parts involved. Ordinarily, a varying degree of implication in the subjacent tissues accompanies the superficial manifestations of the affection. The muscles and joints, and occasionally the bones, may share in the morbid process. Rarely they appear to bear the brunt and eventually atrophy, and contractures and restricted movements supervene. In the deep-seated affection myalgias and arthralgias are often prominent and distressing accompaniments.

Ætiology.—Speculation is rife concerning the underlying causes but none of the many theories advanced by different writers receives general acceptation. The real cause is shrouded in mystery. Two distinct forms are recognized—the circumscribed or localized variety, which is a relatively benign form, and the symmetrically progressive type, which is often widespread, may become generalized, and because of intercurrent complications not infrequently has a fatal outcome. The localized form ordinarily appears on the extremities in the shape of indurated plaques varying in size and form, or of bands of unequal width, unyielding, thickened, sclerosed, and often surrounded by a lilac-tinted areola. The band variety frequently follows the course and distribution of a nerve trunk. Atrophy with localized areas of necrosis consequent upon the defective vascular and nervous supply, with the superadded factor of trauma on the devitalized tissues, contribute to the sufferer's misery and discomfort. The resulting ulcers are indolent and slow to heal. Favourite sites for these ulcers are found in exposed positions, the tips of the fingers, the knuckles, and in the lower extremities, the anterior tibial regions, and about the malleoli. Involvement of the face develops a characteristic facial expression. The orifice of the mouth is narrowed, the eyes staring, the features immobile, mask-like and expressionless. There may be difficulty in mastication and in deglutition.

When the initial process invades the hands, the disorder is designated sclerodactylia. Both hands are simultaneously invaded. The resemblance to Raynaud's disease is sometimes very marked, so much so that some authors hold that both disorders may co-exist. The fingers become rigid, lifeless and wooden-like, the nails atrophy, become deformed and resemble talons. The fingers gradually waste, the grip of the hand is weakened and finally lost. With joint involvement, contractures supervene. Ankylosis of one or more of the phalangeal articulations is a frequent

Fig. 1.—Mrs. B., generalized scleroderma showing band distribution and contracture. Fatal termination.

sequence. The slow and gradual attrition of succeeding ulcerations in the terminal phalanges, together with atrophic changes, leads to deformity in the terminal phalanx and sometimes to partial or complete absorption of this structure. The morbid process slowly extends upward to the hands and the forearms. An analagous state frequently presents in the lower extremities, beginning in the toes and the distal part of the foot, and usually progressing upwards to involve the legs.

The generalized type is marked by extension to wider areas either by circumferential spread, or by the evolution of separate foci of the disease in different parts of the body which later coalesce. The process may advance to include the entire body producing a picture of the most utter and abject helplessness, the sufferer being virtually mummified and unable to move hand or foot.

Treatment.—The circumscribed type, exhibiting no disposition to enlarge its boundaries, need give rise to no anxiety, but the progressive form is a serious disease and should be regarded with grave misgivings. The treatment hitherto in these graver cases has been very unsatisfactory. In view of this circumstance we have tried radium chloride intravenously in the hope of relieving pain and retarding the progress of the affection. The radium salt is put up in glass ampules containing two drachms of normal salt solution ready for administration. A 5 c.c. all-glass piston syringe with a gold needle without rubber attachment is sterilized by boiling. The needle is introduced into the vein and when the blood shows in the glass barrel the radium is delivered into the blood

FIG. 2.—Mrs. T., progressive scleroderma showing sclerodermal mask and the end results of sclerodactylia.

FIG. 3.—Mrs. O., generalized scleroderma showing mummification and deformity. Lethal outcome.

stream. Twenty-five micrograms constitute an initial dose and ten micrograms are given at approximately two-week intervals until a total of from 100 to 250 micrograms is administered. In our cases very little reaction was noted. The patients were not hospitalized. The method seems perfectly safe for anyone who has mastered the details of intravenous work. Relief from the pain was noted early, together with a decisive betterment in the general health, increased mobility in the limbs, a change for the better in the facial expression, and an apparent arrest in the spread of the disease, with partial absorption of the sclerosed tissue. The method seems worthy of a more extended trial in carefully selected cases.

The following brief case reports are appended

FIG. 4.—Mrs. D., Raynaud's disease with progressive scleroderma. Imperfect closure of the hand. Weakened grip.

Mrs. T., age thirty-six; born in Austria. Her first visit to my service in the Winnipeg General Hospital was on July 16th, 1923. The patient suffered from advanced scleroderma of the progressive type, involving all four extremities as well as the face. (Figure 2). The onset of the trouble dated back ten years. Atrophic ulcers appeared from time to time on both the hands and the feet. There was an extreme grade of deformity in the hands. (Figure 2). The patient gradually grew worse. Much deep seated pain in the limbs interfered with rest and sleep. The patient was despondent, nervous and depressed, and removal to the Home for Incurables was contemplated. On May 22, 1924, treatment by radium intravenously was instituted. Between that date and November 16, 1925, a total of 225 micrograms of radium chloride was given by the intravenous route. She is now able to perform her routine household duties with relatively little difficulty.

Mrs. O., age sixty-two; born in Russia; generalized scleroderma with universal involvement of the skin, muscles and joints. The patient was unable to perform the slightest voluntary movement; the chest was immobilized and the patient fixed in the position seen in the photograph. (Figure 3). The photograph was taken at her home under the greatest difficulties. Death resulted from inanition.

Mrs. B., age forty-three; born in England; admitted to my service in the Winnipeg General Hospital, February 5, 1924, suffering from generalized scleroderma with much pain necessitating the exhibition of opiates for its relief. Multiple ankylosis of joints. (Figure 1). Fatal termination.

Mrs. D., age twenty-eight, reported at the medical division of the out-door department of the Winnipeg General Hospital, September 14, 1923. She came under my care May 27, 1925, having been unable to work for the past six months owing to pain and swelling of the hands. The feet were implicated in a lesser degree; no ulceration had taken place. Diagnosis: Raynaud's disease with progressive scleroderma superimposed. In this case the deeper structures were first affected, followed by degenerative changes in the skin. Radium treatment was begun May 28, 1925. Between that date and November 30, 1925, a total of 135 micrograms of radium chloride were given intravenously. Relief from pain followed early in the treatment. She is now able to perform all the light work in her home, but is unable to do heavy work owing to weakening of the grip. (Figure 4). This patient is still under treatment.

Roentgen Ray in the Diagnosis of Perforated Peptic Ulcer.—Free air in the peritoneal cavity is pathognomonic of gastro-intestinal perforation and was found by R. T. Vaughan and William A. Brams, Chicago, on fluoroscopic examination, in 86.2 per cent of a series of twenty-nine proved cases of acute perforation of gastric or duodenal ulcer. This free air is easily seen on fluoroscopic examination without previous preparation or use of a contrast meal. The sign appears in the earlier stages of perforation and was present two hours after the onset of the trouble in one of our cases. The free air is recognized by observing a narrow, sickle shaped zone of freely shifting air between the viscera and the abdominal wall or between the diaphragm and the upper surface of the liver. The air changes location with change of posture of the patient. The procedure is apparently without harm and does not produce discomfort to the patient.—*Jour. Am. Med. Ass.*, Dec. 12, 1925.

PRIMARY REPAIR OF INJURIES TO THE PAROTID DUCT

FREDERICK J. TEES, B.A., M.D., F.A.C.S.

Associate Surgeon, Montreal General Hospital, Montreal

IN view of the large amount of space that is devoted in the literature to the treatment of salivary duct fistula it is remarkable that the immediate repair of the divided duct receives such scant notice. If in connection with salivary duct injuries primary repair is mentioned at all, it is in the form of advice to search for the divided ends and to unite them with catgut.

It is possible that the lack of attention to painstaking methods of accomplishing this primary union may be responsible for the unnecessarily large proportion of cases which develop a fistula and require subsequent operation or operations for its relief.

The course of the duct, which is ordinarily described as consisting of three portions,—glandular, masseteric and buccal—lies along a line drawn upon the skin of the cheek from the lower border of the tragus to a point midway between the nostril and the red margin of the lip. The duct is about two and one-half inches long and ends opposite the second upper molar tooth. In all deeper injuries which cross this region one must suspect damage to the duct, a condition which is not difficult to establish.

Konig believes that primary union may occur spontaneously but such an outcome must be exceptional.

It goes without saying that primary repair should always be attempted. In Choyce's widely read textbook the author is not optimistic as to the outcome: "This operation," he writes, "is one of extreme difficulty in view of the diminutive circumference of the duct, and in my opinion, primary union rarely if ever occurs."

In the event of failure there develops a salivary fistula. This condition, while not a dangerous one, is extremely burdensome, necessitating a constant wiping of the cheek, and frequently leads to a very troublesome eczema. The quantity of saliva secreted may be very considerable. Duphenix collected seventy grammes from a salivary fistula in a quarter of an hour, and Jobert reports a case where several cupfuls were passed in the course of twenty-four hours.

Many methods have been devised for the treatment of these fistulas, aiming either at—

(1) A restoration of the normal aqueduct, or

(2) The conversion of an external into an internal fistula.

Fistula of the buccal portion presents a much simpler problem than the masseteric, for in the former the second method is usually feasible. The masseteric cases are more intractable.

Delarue, in 1895, collected twenty-six different operations devised up to that time, since when other methods have been described. These procedures are associated with the names, among others, of Nicoladoni, Von Langenbeck, De Guise, Weber, Eisendrath, Wyeth, Desault, de Roy, Richelot, Kaufmann, Braun, Trélat, Pearce Gould, Leriche, Jianu, Ferrarini, Tillmanns, and Crouse.

FIG. 1.—Wound of masseteric portion of duct. Catgut strand in lumen serving as dowel.

In a multitude of councillors there is wisdom, but in a multiplicity of ways and means there is seldom a royal road. Once a fistula has developed no method aiming at its cure seems to guarantee success, and as a counsel of despair not a few have in obstinate cases advocated complete excision of the parotid gland. From all

of which it will be apparent how much to be desired is a successful primary repair.

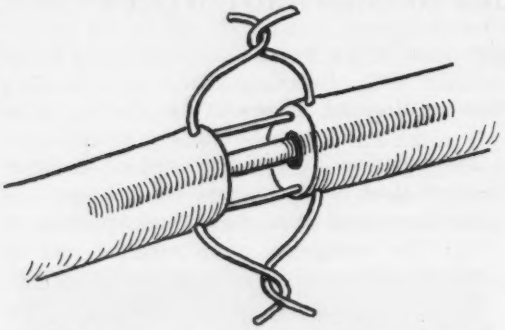


FIG. 2.—Severed ends of parotid duct. Catgut in lumen serving as a dowel. Sutures placed in sheath.

In two cases of division of the masseteric or middle portion of the duct the method described below was employed. In both instances primary union was obtained, with no evidence of leakage at the suture line and no subsequent swelling of the parotid gland.

Case 1.—Male, aged twenty-eight, wounded on the left cheek by sharp instrument which cut the duct. Admitted to the Montreal General Hospital, Nov. 18, 1921. Operation by Dr. H. M. Young four hours after injury.

Case 2.—Male, aged nine, sustained a lacerated wound of the left cheek by being thrown against a broken windshield in an automobile collision. The duct was divided. Admitted to the Montreal General Hospital, November 10, 1922. Operation by Dr. F. J. Tees four hours after injury.

The severed ends of the duct were in the two instances readily found, and while in each the lumen was too small to admit the finest probe there was no difficulty in inserting a short length of stiff iodine catgut, No. 1, into the distal and proximal portions of the duct. This acting as a dowel served to keep the lumen of the divided ends in apposition and two fine catgut sutures through the sheaths maintained the coaptation.

In the first case the end of the catgut was allowed to project through the orifice of the duct into the buccal cavity, but this was not done in the second case and is not considered necessary or advisable. Plain catgut is apparently digested by the saliva and subsequently disappears.

The method is illustrated in the accompanying diagrams, and is recommended for trial in the hope that it will materially reduce the number of cases of this type of injury requiring secondary operative measures.

Clinical and Experimental Renal Deficiency.—The experimental and clinical studies made by Frederick M. Allen, Rudolph Scharf and Harry Lundin, Morristown, N. J., seem to place diabetes and kidney disease on much the same basis. The pathology of both is composed of a primary and a secondary factor. The primary factor is infection or intoxication, producing the initial lesions. The secondary factor consists in a functional overstrain of the damaged organ. The hydropic degeneration of islands of Langerhans is explainable on this ground and no other. Likewise the degenerative changes in the renal epithelium, which have been mysterious in cause and character, can probably in large measure receive the same functional explanation. Vascular disease or other local peculiarities may make the conditions less clear-cut in the kidneys than in the pancreatic islands. One difference must be recognized in the fact that functional rest of the pancreatic islands clears up glycosuria, while functional rest of the kidneys does not usually clear up albumin and casts. On the other hand, it is also known that albumin and casts are not trustworthy signs of the progressiveness of a case. With allowance for certain inevitable consequences of existing organic and vascular damage, the recognition of the class of secondary anatomic lesions due to functional overstrain should represent a valuable advance in the study of diseases of the kidneys. The clinical application is also important; namely, that for the most part hypertension and nephritis are not inherently progressive but are permanently controllable by adequate sparing of function.—*Jour. Am. Med. Ass.*, Nov. 28, 1925.

THE SIGNIFICANCE OF HÆMATURIA*

JAMES C. McCLELLAND, M.B.

Toronto

DISEASES of the urinary tract manifest themselves by one or more of the four main symptoms of frequency, pain, hæmaturia, or a change in the character of the urine. Of these, hæmaturia is extremely important and should lead us to search immediately for the cause. Once this is determined, rational treatment may be instituted. If a complete examination is neglected and a condition such as a tumour is present, headway may be gained by the growth, and the patient given no hope of complete recovery.

Symptoms.—Blood may appear in the urine without the patient having any other symptoms. Geraghty in his series of bladder tumours showed that in seventy-six per cent the first sign was a "symptomless hæmaturia." Frequency and pain very often accompany bleeding, and when present indicate infection some place in the urinary tract. Pain may be present in the flank, dull, sharp or so severe as to be called a renal colic. Pain in the kidney area accompanied by blood in the urine points to the kidney as the source of the trouble, unless there is an obstruction preventing free access of urine to the bladder, and the damming back of urine in the renal pelvis, producing a painful distension. For example, this occurs when an infiltrating tumour of the bladder surrounds the ureteral orifice producing a carcinomatous stricture. Renal and ureteral colic will localize the trouble, and one must bear in mind that a calculus passing down the ureter is not the only thing which will produce pain. A blood clot, a piece of tumour, or some caseous material will also produce a ureteral colic. Pain in the suprapubic area accompanying hæmaturia may point to the bladder as the origin of the bleeding; a distended bladder may mean retention, or the pain may mean the contracted bladder of advanced vesical tuberculosis. Pain referred to the end of the penis usually means an inflammation of the trigone from a variety of causes, and is often accompanied by a terminal hæmaturia. Burning on urination usually means infection with involvement of the urethral mucosa. Therefore, it is important to note if any of these urinary symptoms are present as they often aid in localizing the source of the bleeding.

Urine Examination.—The urine collected into two glasses is often of great help in determining the source of the bleeding. As shown in Figs. 1,

N.B.—The darkened glasses denote blood in the urine.

2 and 3, one may have blood in the first glass and a clear second, indicating the blood was coming from the urethra. Blood intimately mixed in both glasses points to the bleeding occurring in the bladder or the structures above, namely, the ureter or kidney. A clear first glass and blood in the second points to the origin of the bleeding being in the bladder or posterior urethra.

The causes of hæmaturia may be classed under three main headings:—

1. Conditions *in* the urinary tract causing bleeding.
2. Conditions *bordering on or around* the urinary tract giving blood in the urine.
3. *General Conditions* causing bleeding.

(1) *Conditions in the urinary tract causing bleeding.*—These may be considered under the headings of: inflammations, tuberculosis, new growths, calculus, trauma, and applied to each of the structures making up the urinary tract as kidney, ureter, bladder, prostate and urethra (see table).

Kidney.—The inflammations in the kidney are pyelitis, pyelonephritis and pyonephrosis, all varying degrees of the same process and each producing hæmaturia. Microscopic blood occurs more frequently than gross bleeding. Renal tuberculosis has microscopic blood as a frequent finding. Occasionally there is a good deal of gross blood. When this occurs, the bladder is usually the seat of an advanced tuberculosis,

*Read before the Ontario Medical Association Annual Meeting in Toronto May, 1925.

secondary to the kidney lesion, and literally "weeps" blood. An acute cystitis of this variety must not be looked upon as the lesion to be treated while the main one in the kidney is overlooked. Neoplasms produce blood in the majority of cases and show a mass in the flank, which may reach large proportions. Stones in the kidney may lie dormant for a long time without symptoms but usually there is some pain varying from a slight dull ache to a very acute colic. During the pain and particularly the colic, either gross or microscopic blood is usually present in the urine. Rupture of the kidney will produce a good deal of blood in the urine provided the tear communicates with the pelvis. Polycystic disease may give hæmaturia. Hydronephrosis rarely has bleeding unless it becomes infected and then the inflammation can account for it.

Ureter.—A small calculus passing down the ureter usually causes bleeding, either gross or microscopic. New growths from the kidney pelvis or bladder may extend into the ureter and be a source of bleeding, though the real one is the main growth. Stricture of the ureter has pain as its most common symptom, but occasionally there is a small quantity of microscopic blood.

Bladder.—Acute and chronic cystitis have blood in the urine commonly. An acute cystitis may have a great deal of gross blood coming at the end of urination, though it may be intimately mixed with the urine also. The chronic type may have a small number of red blood cells in the urine, but usually pus predominates. Vesical tuberculosis gives blood almost constantly. An early lesion produces microscopic blood, and an advanced lesion, gross blood. The mucosa of a late tuberculous cystitis is fiery red in colour and literally "weeps" blood into the bladder cavity. A stone in the bladder causes an injury to the bladder wall producing hæmaturia and pain at the end of urination referred to the tip of the penis due to the bladder closing down and pressing the stone against the sensitive mucosa of the trigone. Injury, whether caused by an instrument, or an accident produces a varying amount of bleeding according to the extent of the damage. Individuals who have lived in the tropics and particularly in Egypt may have their bleeding from bilharzia hæmatobia. This is small in amount, and diagnosed by finding the parasites in the urine, and the bladder gives the picture of small glistening yellow nodules and a few areas of granulation. A diverticulum is usually the site of a cystitis and bleeding may be caused by this inflammation.

Prostate.—Adenomyoma and carcinoma of the prostate produce blood both small and large in amount. Bleeding is more prevalent with the adenomyoma than the carcinoma, which is a very hard growth usually resisted by the bladder mucosa, though ulceration does occur in some cases. Stones in the prostate proper do not produce a definite hæmaturia, but are a source of pain to the patient and evidenced by bloody ejaculations. Injury will give bleeding and vary according to the amount.

Urethra.—Acute urethritis has bleeding as a symptom occasionally. Chordee may be so severe as to rupture an inflamed portion of the urethra and cause a good deal of bleeding. During treatment for acute gonorrhœa, strong chemicals used to a very sensitive urethra will cause considerable pain, frequency, tenesmus and hæmaturia. The trigone of the bladder is usually involved in this acute process. Tuberculosis of the urethra occurs along with tuberculosis in the other parts of the urinary tract, and is taken into account separately only when a stricture is produced. This occurs in male patients around eighteen years of age from renal tuberculosis, and is no doubt secondary to a tuberculous inflammation in the urethra. New growths of the urethra are very rare. Tumours from the bladder may grow down the urethra or a carcinoma of the penis may invade the urethra to give blood in the first glass urine. A calculus may be passed through the urethra causing damage to the urethral mucosa, as it is forced along on its way to the meatus. Trauma—violent injury to the urethra caused by falling astride some narrow object as an iron bar or a fractured pelvis causes a rupture of the membranous urethra. Blood appears at the meatus as the first symptom. The passage of instruments through the urethra frequently causes bleeding even though the very greatest of care is taken to avoid it.

Nephritis is a frequent cause of microscopic bleeding and occasionally gross bleeding. Casts and albumin are usually the companions of the blood, and serve to help in the diagnosis. Drugs such as santal oil, turpentine, cantharides, carbolic, etc., may produce red blood cells in the urine in varying quantity, gross and microscopic. Varicose veins may occur anywhere in the urinary tract and rupture of them may produce very acute bleeding. This is very uncommon. A nævus occurs rarely but when it

does one has considerable difficulty controlling the hæmorrhage.

(2) *Conditions bordering on or around the urinary tract giving rise to blood in the urine.*—Inflammation and new growths bordering on the bladder may involve it in that process. Acute pelvic inflammation as occurs from an inflamed appendix hanging over the brim of the pelvis and forming an abscess, salpingitis and inflammations in the broad ligament, new growths in the bowel, cervix or body of the uterus, may involve the bladder and give the signs and symptoms of a local lesion there. Later, infection occurs or a fistula forms when the bowel contents are discharged through the bladder, or urine finds its way through the fistula into the vagina as in the case of carcinoma of the cervix. In the male, carcinoma of the rectum invades the bladder and produces a recto vesical fistula.

(3) *General conditions causing bleeding.*—Emboli from an endocarditis reach the kidneys producing small infarcts, and cause sudden pain in the flank followed by blood in the urine. Leukæmias, purpura hæmorrhagica, scurvy, hæmophilia and focal infections may cause bleeding. Their diagnosis is made by a general physical examination taking particular note of the heart and spleen. Blood smears and blood cultures are also important. Similar to epistaxis in arteriosclerosis one may have blood in small or large amounts from the kidneys. Foci of infection occasionally, feed organisms to the kidney, and blood occurs in the urine.

Diagnosis.—When a patient presents himself complaining of "blood in the urine" how is one to proceed to reach a diagnosis? A good *history* must be elicited and an effort made to localize the trouble to the urinary tract, around the urinary tract or a general disease. This is not always possible, but the occurrence of frequency or pain will help considerably.

Physical Examination.—This is very important and should include every system in order. Particular care is to be taken to make a routine rectal examination. This should include an inspection of the anus for hæmorrhoids, fissures, and fistulæ. The tone of the sphincter is to be noted, particularly as a relaxed sphincter is present in spinal cord disease and injures and impairs the emptying power of the bladder. The membranous urethra is felt between the finger and the under surface of the symphysis. Both sides of the membranous urethra are palpated by approximating the index finger inside, with the thumb outside, and any tenderness or induration noted. This manœuvre helps in diagnosing an inflammation or abscess in Cowper's glands, or the region around it. By following up the membranous urethra, the tip of the prostate is reached. In the prostate, note the size, presence or absence of the median furrow, consistence of each lobe, any induration and where it extends to. At the upper border of the prostate the seminal vesicles, bladder wall, vasa deferentia and lower side of the ureter are found, but if normal they are difficult to distinguish. Induration in any one of them makes it prominent and easily recognized, for example, the infiltration of the base of the bladder by a tumour. The rectal mucosa as far as the finger will reach is

CAUSES OF BLEEDING WITHIN THE URINARY TRACT

	Kidney	*Ureter*	*Bladder*	*Prostate*	*Urethra*
Inflammations....	Microscopic but occasionally gross		*Acute:* gross and microscopic. *Chronic.* microscopic.		Gross and microscopic
Tuberculosis.....	Microscopic (constant) occasionally gross.		Microscopic and gross.		Microscopic.
New Growths.....	Gross blood and a mass in the flank.	Gross.	Gross.	Gross and microscopic.	Gross.
Calculus.....	Microscopic and gross.	Microscopic and gross during colic.	Microscopic and gross.	Microscopic. Bloody ejaculations.	Gross and microscopic.
Trauma.....	Gross.		Gross.		Gross.
Uncommon Causes.....	Hydro-nephrosis. Polycystic disease.	Stricture (rarely)	Bilharzia diverticulum		

carefully explored for masses and areas of induration.

The presence of abnormalities in the urine accompanying the blood such as pus, organisms, casts, etc., are of great aid. Pus points to an inflammation commonly within the urinary tract and occasionally secondary to a lesion of a neighbouring organ. Pus with no organisms commonly points to the lesion being tuberculosis and the tubercle bacillus should be looked for. Blood with albumin and casts indicates a nephritis.

An x-ray of the kidneys, ureter and bladder (K.U.B.) is done to show the presence or absence of a stone. The size of the kidney may also be outlined.

When as much information as possible has been collected by the above methods, and a definite diagnosis has not been made, cystoscopy must be done for inspection of the bladder, and a study of both kidneys by means of the separate urine. Functional tests can be carried out with each separate kidney, and the pelvis injected with an opaque medium to get an outline of the kidney pelvis and ureter (pyelograms). Dilatations of the kidney pelvis, kinks of the ureter, and the exact location of stones can be noted. Tumours of the kidney invading the pelvis causes a filling defect in the pelvic outline. Pyelograms are also a great aid in ascertaining whether an opaque mass in one area is connected with the kidney or not.

Essential Hæmaturia. After a thorough search for the cause of blood in the urine has been made, and the source not found, we fall back on the term idiopathic or essential hæmaturia meaning a confession that the cause has not been found.

In *conclusion* may I point out that blood in the urine tends to appear intermittently and once it occurs it must be considered serious until proven to be otherwise. Early diagnosis is necessary to allow proper steps to be taken to remove the cause before it is beyond treatment. The bleeding tends to be intermittent and the periods between attacks allow the condition to advance so that an early diagnosis is very, very important. *Therefore, all patients complaining of blood in the urine must be thoroughly investigated during the first attack and no time lost waiting for further bleeding during which time the condition progresses.* The best example is a benign papilloma of the bladder, easily destroyed when recognized early, which becomes malignant later, and is extremely difficult if not impossible to deal with.

The Ultraviolet Ray as a Prophylactic Against Radiodermatitis. — An attempt was made by George M. MacKee and George C. Andrews, New York, to ascertain whether or not the ultraviolet ray is of any real value as a prophylactic against radiodermatitis. Routine practical technique was employed, and the visual results were recorded. The conditions used for observation were: disseminated tinea capitis; acne vulgaris; senile skin with numerous keratoses and epithelioma, and also severe pruritus vulvæ; leprosy; prickle-cell epithelioma and numerous seborrheic keratoses scattered over the face, and a small basal-cell epithelioma on each cheek. The results obtained show that actinotherapy is of some value in the treatment of chronic ulcers and telangiectasia caused by roentgen rays or radium. Vigorous actinotherapy, resulting in acute reactions, at or near the time of roentgenization, may enhance the result of the latter. Tanning of the skin by actinotherapy does not materially increase toleration for roentgen rays or radium. Preliminary, generalized actinotherapy, even when continued for a long time, does not appear materially to decrease "radio-sensitiveness." It is possible to administer several or many times the standard erythema dose of roentgen rays to normal human skin without effecting more than a mild visible reaction. Ignorance of this fact may account for the erroneous assumption that actinotherapy is a prophylactic against roentgen-ray and radium injuries. It is the authors' opinion that the ultraviolet ray, regardless of how employed, is of no practical value as a prophylactic against acute or chronic radiodermatitis. Furthermore, it is their opinion that a combination of the ultraviolet ray and the roentgen ray is more likely to be followed by sequelæ such as telangiectasia than when the roentgen ray alone is employed.—*Jour. Am. Med. Ass.*, Nov. 28, 1925.

"GASSY INDIGESTION:" ITS SIGNIFICANCE AS A SYMPTOM OF GALL BLADDER DISEASE*

With a Review of 60 Cases of Cholecystectomy

A. R. Campbell, B.A., M.D., C.M., (Dal.), F.R.C.S., (Ed.)

Surgeon, Yarmouth Clinic Infirmary, etc., Yarmouth, N.S.

IT is astonishing how many cases of chronic disease of the gall bladder are diagnosed and treated for years as flatulent indigestion, heart disease, gastric ulcer, chronic constipation, etc. There is, in my experience, no disease in which practitioners more commonly err in their diagnosis. This is probably due to the faulty manner in which the subject of cholecystitis is treated in the average text-book. The reader has his attention focused on the chemistry and etiology of gall stones, and biliary colic with jaundice, to the neglect of the many times more common condition of chronic disease of the gall bladder without colic or jaundice. Sir James MacKenzie in "Symptoms and their interpretations," 1909, referred to the subject, stating that, "In persistent dyspepsia and heart-burn the question of gall stones should always be considered." Walton in his "Text-book of the Surgical Dyspepsias" gives perhaps the best description of the condition, though here again the subject is lost in a great maze of gall stones and operative technique.

The condition is met with most frequently in stout, middle aged women whose most common complaint is indigestion, gas in the stomach, and a sense of weight in the epigastrium "like a lump of lead." These symptoms are associated with the taking of food, coming on oftentimes before the meal is finished and persisting in spite of a reduction of the diet to a minimum. It varies from time to time in the severity of the symptoms, but is definitely worse after the ingestion of certain foods such as pork and beans, or cabbage.

This condition may persist for two or three months; and there is generally the history of similar attacks recurring over a period of several years with intervals of semi freedom of variable duration. There is usually no history of jaundice or of severe pain in the region of the liver.

Another common type of complaint in this affection is that of "bad heart spells" in which, after a meal, the patient is conscious of a smothering sensation with much flatulence and gaseous distension of the stomach. Not infrequently such an attack comes on during the night, forcing the patient to sit up in bed, and by one means or another get rid of the gas on the stomach.

When after a confirmatory physical examination, a diagnosis of gall bladder disease with or without gall stones is made, we are apt to meet with some scepticism from the patient. Popular belief associates gall stones with severe colicky pain. It is also a popular view that the x-ray will always demonstrate gall stones when present, and the doctor's statement that only a small proportion of cases of chronic gall bladder infection have severe colic, and that in less than a tenth, does the x-ray show a definite gall bladder shadow, is met with some incredulity; only those gall stones containing lime salts show on the x-ray film.

Any chronic lesion in or about the gall bladder which is sufficient to irritate the right phrenic nerve will produce this type of flatulent indigestion, and it should be appreciated that derangement of the stomach is often the indication not of a diseased stomach, but of a pathological lesion elsewhere, such as cholecystitis, appendicitis, adhesions, etc.

This paper is based on sixty cases of gall bladder disease in which I removed the gall bladder. Three died, the remainder are as yet free from their former symptoms.

In order of frequency, the groups of symptoms met with are as follows:

1. Gassy indigestion and constipation, i.e., a sense of fullness and weight in the epigastrium, without pain, coming on during or immediately

* Read before the Nova Scotia Medical Society, at Bridgewater, N.S., July 2. 1925.

after a meal, followed by the belching of wind and associated with increasing constipation.

2. "Heart trouble with gas in the stomach." An attack may follow any meal and frequently occurs during sleep. The patient experiences a sense of constriction and even sharp pain in the region of the heart with palpitation and shortness of breath. (The pain does not radiate down the arm as in angina.) It is relieved by belching up large quantities of gas. The pulse is often feeble and extremely irregular.

3. Attacks of soreness in regions of gall bladder and appendix, with gassy indigestion and vomiting.

4. Attacks of typical biliary colic with jaundice.

5. Attacks simulating right renal colic.

6. Symptoms resembling those of carcinoma of stomach or intestine.

Group 1. Patients complaining of gassy indigestion and constipation are met with daily in office practice, and the description given above is a typical case history of the ordinary woman who contains anywhere from one to fifty large gall stones. Why the "boiled cabbage test" has not been listed in the textbooks, I do not know, but a woman's ability or inability to eat boiled cabbage seems to be a very accurate indication of the absence or presence of chronic cholecystitis. Once gassy indigestion sets in, the attacks complained of usually increase in frequency and severity, and the patient is never wholly free from it between times, which differs from the indigestion of gastric and duodenal ulcer. It is unlike the indigestion due to chronic ileus of the duodenum in that it is not relieved by lying down. In a man the symptom complex is usually found to be due to chronic appendicitis alone, without cholecystitis.

Group 2. Patients suffering from this second group of symptoms are often in a more serious condition. During attacks the heart action becomes extremely irregular and weak. If the condition is not remedied by operation, they frequently acquire a heart condition that is very difficult to relieve, and which makes them poor operative risks. It is a not infrequent cause of death in old women. Such patients usually need a few weeks medical treatment to fit them for operation.

Case 1.—Fleshy woman, aged sixty-six, B.P. 200/72. She had gassy indigestion for twelve years. During past four years has had "spells with her heart" of increasing frequency and severity,—a tight smothering feeling about her heart with palpitation, shortness of breath and occasional pain. This pain did not radiate down the arm as in angina. Distress was relieved when she could raise gas from her stomach. Her case had been diagnosed and treated as heart disease for years. Never had biliary colic nor jaundice. Seen during one of her spells, her pulse rate was forty, extremely irregular and of poor volume. Murphy's sign positive, tender over appendix, Mussy phrenic pressure point positive. After two weeks treatment pulse became steadier. At operation an atrophic appendix and a gall bladder containing fifty large gall stones were removed. The patient had a lot of epigastric distress for ten days, then the condition cleared up and she has been free from gas in the stomach and from "heart trouble" ever since, and her pulse is normal.

Group 3 is usually diagnosed as chronic appendicitis. An incision so placed that the gall bladder can be examined will clear up the diagnosis.

Group 4 is the text-book type that is infrequent as compared with the cases showing the two preceding groups of symptoms.

Group 5 simulating right renal colic, is extremely difficult to diagnose, even with the aid of the cystoscope and x-ray, as in the following case.

Case 2.—Female, fleshy, age sixty-eight; had been having recurring attacks of colic in the region of the right kidney for years. She developed an attack two weeks before operation. There were severe pains in the region of the right kidney, running down the ureter to the bladder and sometimes up to left kidney. She ran a temperature up to 102°F. Her urine contained pus and red blood cells. Under treatment the temperature became normal, but the pain did not subside; even to turn in bed pained her. The x-ray examination was negative. Cystoscopic examination showed cloudy urine issuing from right ureter. Boas' sign was extremely well marked. The patient had also been troubled with gassy indigestion for years. Her case was diagnosed as renal calculus. At operation a preliminary exploratory laparotomy was done. A large calculus was felt apparently in the upper pole of the right kidney. But on examining the liver no gall bladder could be felt. Investigation showed a thick contracted gall bladder containing three large calculi, bent over and firmly adherent to the capsule of the upper pole of the right kidney. A cholecystectomy was performed and the patient has been well ever since.

One other case in this series presented almost identical symptoms.

Group 6. Simulating intestinal carcinoma may be impossible to diagnose without an exploratory laparotomy, as in—

Case 3.—Female, age sixty-one. Tall muscular type. Had always been well till five months before examination, when she developed gassy indigestion, with rapidly increasing constipation. Had lost twenty pounds in weight. Complained of a sensation of distress and gurgling in the region of the sigmoid. The only tender area was slightly to the right of the umbilicus. Murphy's, Mussy's and Boas' signs were negative. A barium meal passed to the cæcum in six

hours but seemed to stop there. A barium enema passed up to the region of the cæcum where it seemed to meet an obstruction. At operation the only lesions found were an atrophic appendix and a gall bladder containing 124 medium sized stones. These were removed and her symptoms were completely relieved; and since then she has regained her weight.

Physical Examination

(1) *Murphy's sign,* is well known, and was positive in all but one of the series.

(2) *Boas' sign,* i.e., an area of tenderness extending laterally from about one inch external to the spines of the vertebræ, to the posterior axillary line, and vertically from the eleventh dorsal to the first lumber vertebræ. Once found it is always present. This sign was positive in only ten of these cases, and was most marked in the two cases simulating renal colic.

(3) *Mussy Phrenic Pressure Point,*[1] elicited by making pressure between the two heads of the sterno-cleido-masteoideus muscle above the clavicle. In positive cases this point is more tender than the similar point on the left side. The right phrenic nerve contains sensory as well as motor fibres, and supplies sensory fibres to the pleura, pericardium, right diaphragm, surface of liver and to the gall bladder. Pain and tenderness on pressing the phrenic nerve is due to neuralgia of the sensory fibres, and if the right lung is not diseased it means cholecystitis. This is a new and valuable sign. In the last twenty cases it was positive in all but one, viz., case 3.

(4) X-ray examination (with ordinary technique) is not of much value, except where adhesions cause distortion of the pyloric end of the stomach, the duodenum, or of the transverse colon.

(5) McBurney's point is usually tender in chronic cholecystitis, due to the fact that this condition is nearly always associated with a chronic appendicitis. Again the fundus of a distended gall bladder not infrequently extends down to this locality and is tender on pressure. The surgeon who finds a supposedly acute appendix to be normal in appearance, must never neglect to examine the gall bladder.

In patients suffering from gassy indigestion due to cholecystitis, who develop acute pain in the region of the gall bladder or epigastrium, one should ever be on the alert to watch for acute suppurative cholecystitis and acute pancreatitis. These complications demand immediate operation if the patient is to survive. During the past four years I have seen two cases of acute pancreatitis; both died. One, a man of sixty developed the condition two days after cholecystectomy for acute suppurative cholecystitis. The other a young woman, who was in a moribund condition when first seen, and was not operated upon. For an early diagnosis of acute pancreatitis, suspicion should be at once aroused, if in the course of gall stone trouble an attack occurs, in which besides the painfulness on pressure in the region of the gall bladder, there is the new fact of a zone of acute painfulness and strong muscular tension distinctly isolated in the middle and to the left side of the epigastrium. This unbearable epigastric pain fluctuates in intensity but it is characteristic in that it continues uninterruptedly for hours; it is a "permanent pain."[2] Preoni states[3] that there is invariably a point of intense tenderness a finger breadth to the left of the mid line and two finger breadths above the umbilicus. If this tender point is not present it is not acute pancreatitis. I have not had an opportunity of testing this sign in acute pancreatitis, but because of its very frequent occurrence in ordinary office cases, I should not consider it to be of much value. In pancreatitis we meet with frequent vomiting of large amounts of bile stained fluid, no fever, increasing rapidity and weakness of the pulse, and a rapid fall in the systolic blood pressure. There is marked inactivity of the bowels, which differs from ileus by lack of persistent contractions and by the absence of true fæcal vomiting. Liver dullness is not lost as in perforation or peritonitis. Bluish spots in the umbilical region are found in the hæmorrhagic form. Immediate and thorough drainage of the pancreatic area is the only cure.

As to the pathology of gassy indigestion, it cannot be too strongly stated that the symptoms are reflexly due to irritation of the sensory nerve fibres of the gall bladder; that this irritation is due in most cases to chronic inflammation of the gall bladder and that gall stones may result from this inflammation, but that their presence is not essential to the production of the symptoms under discussion. In 20 per cent of this series no stones were present.

The following unusual cases are cited as illustrative:

Case 4.—Female; age sixty-three. Symptoms like Case 1, but she was much more critically ill during her "spells." The gall bladder contained no stones, but

was thick and white and the liver showed a fan of fibrous tissue radiating into its substance for an inch, about the gall bladder. Cholecystectomy cured her.

Case 5.—Female; age fifty-six had had a cholecystostomy two years before coming to me, with no relief of symptoms. A cholecystectomy was performed with resulting relief for some months. Attacks of colic returned. Opened the common duct and removed from it a round worm eight inches long. Has been well since then.

Case 6.—Female; age twenty-four, complaint of gassy indigestion with attacks of pain and soreness in regions of gall bladder and appendix. On operating, the gall bladder was found to be a globe like structure one inch in diameter, attached to the liver, only by a cord one and a half inches long, consisting of the duct and blood vessels. Her appendix was six and a half inches long; removed both. Recovery was uneventful.

Case 7.—Female; age sixty-six: who had suffered from severe gassy indigestion for 20 years. The gall bladder contained no stones, but there was a mass one-half inch in diameter of stony hardness in the liver beside the gall bladder. The gall bladder and a wedge of liver containing the growth were removed. The patient has been well ever since. The mass proved to be a thin walled cyst containing clear greenish fluid, and having no connection with the gall bladder.

The normal gall bladder has a grayish-blue-green colour. When this has changed to white with a greenish tinge it means that because of chronic inflammation, fibrous tissue has been deposited in amount sufficient to rob the organ of its elasticity and its function as a storehouse for bile. Temporary drainage will not remove this fibrous tissue and will not cure the chronic inflammation. The majority of writers comparing the end results of cholecystectomy as opposed to those of cholecystostomy confine themselves to the recurrence of colic, and neglect the much more common and important question of indigestion. As a cure for colic, cholecystectomy, as shown by statistics, is much more efficient than cholecystostomy. As a cure for gassy indigestion, there is no comparison between the brilliant results of the one and the inefficiency of the other. People ask "Where is the bile stored if you remove the gall bladder?" You may reply with the question "Where has it been stored during all the years the gall bladder has not been functioning because of its fibrosed condition?" The answer is seen in every operation that is properly performed. The common and hepatic ducts dilate and take over the duties of the gall bladder in addition to their own. I have frequently seen common ducts from one half to three quarter inch in diameter.

The operation is best performed through a vertical incision one half inch to the right of the mid line, as this opening is easiest to close, because by splitting the falciform ligament there is plenty of loose peritoneum. It can also be extended downward in case of difficulty in dealing with the appendix (which should always be removed at the same time.) A tube drain should be inserted through a stab wound two or three inches to the right, for there is always considerable leakage of bile and blood from the raw surface of the liver for from twenty-four to thirty-six hours. After the operation there is considerable gastric distress for from five to ten days, i.e., until the sensitive area of the liver begins to heal. This should be explained to the patient to relieve her mind from worry over delayed recovery. Cholecystectomy is a safe and usually not difficult operation. As regards the three deaths in the series, one was due to the development of acute pancreatitis; the second was due to embolism in an extremely restless male patient who by getting out of bed on the fifth day broke open his wound; the third died from ileus.

Summary

1.—The common complaints of "gassy indigestion" and "spells with the heart" in middle aged and elderly women, are generally caused by chronic inflammation of the gall bladder and appendix.

2.—Gall stones are not always present and are not essential to the development of the symptom complex.

3.—Removing the gall bladder does not in these cases interfere with the function of the biliary system.

4.—The best treatment is to remove the gall bladder and appendix at the same time. The mortality of this procedure is low, the results wonderfully satisfactory in that the patient can afterwards eat ordinary food and be comfortable.

REFERENCES

(1) HOGLER AND KLENKHART, *Wiener Arch. fur innere Medizin*, Vol. 5. No. 1, 1922. (2) PROF. ZELLER. Berlin. (3) PREOINI, *Spanisch Z.* Org. xix. No. 7.

ESSENTIAL THROMBOCYTOPENIC PURPURA HÆMORRHAGICA

CONRAD G. GEGGIE, M.D.

Edmonton

A RESUME of the literature cannot help but impress one with the difference of opinion extant respecting this disease, morbus maculosus Werlhofii, or essential thrombocytopenic purpura hæmorrhagica. A brief historical review of the subject is essential to clearly set forth the present status of our knowledge of this very interesting condition.

About 150 years ago Werlhof described this condition, but did not clearly differentiate it from various other forms of purpura. Several observers have added interesting opinions but not until recent years and the writings of Brill, Krumbhaar, Frank, Seeliger and others, have we been able to clearly differentiate between essential thrombocytopenic purpura hæmorrhagica and the various other forms of purpura.

All purpuras have as common characteristics hæmorrhage into the skin, mucous membranes, stomach, bowels, urinary tract, central nervous system, etc., and all, if severe, are followed by a secondary anæmia. All too are most common in the first two decades of life.

Essential thrombocytopenic purpura hæmorrhagica however alone presents the complete chain; clinical history, symptomatology and laboratory findings, which combined can only be found in this condition, and their combination serves to definitely differentiate this form of purpura from all the others. The clinical history is, in most cases, negative until the first symptom of hæmorrhage from the nose, vagina, gums or other mucous membranes, becomes sufficiently severe to cause alarm. This is followed by a progressive secondary anæmia which usually causes medical advice to be sought.

So far the disease may be any one of the purpuric conditions and recourse must be had to the laboratory to definitely settle the diagnosis. In a case of essential thrombocytopenic purpura hæmorrhagica it will be found that the blood clots normally, as to time, but the resultant clot is soft and non-retractile. The bleeding time is prolonged up to 20-40 minutes, and sometimes more, and last, but not least, the blood platelets, normally between 200,000 and 300,000 per c.mm. tend to fall in numbers to a few thousand, or to be entirely absent.

These various points,—absence of causative factors, and symptomatology combined with the above definite blood picture, will enable us to rule out all other idiopathic diseases, accompanied by hæmorrhage from the skin or mucous membranes, and to declare a case to be definitely one of essential thrombocytopenic purpura hæmorrhagica.

The case having been definitely diagnosed, what is the treatment? There is no treatment known for this condition which gives as good results as splenectomy. Local applications, stypties, the use of sera, transfusion and the use of various drugs as well as x-rays have been found to be of little, if any use. Cases have a tendency to become arrested for a while but will later recur and each recurrence is likely to be more severe than the previous one. One must therefore be of an open mind and not conclude that a certain line of treatment has effected a cure.

In 1916, Kaznelson, of Prague, advised splenectomy for this condition and pointed out that it was for essential thrombocytopenic purpura hæmorrhagica alone that he so advised. Later it was taken up elsewhere and to date forty-five cases have been collected and reported by Clopton. Of these forty-five cases twenty-seven are reported as well, fifteen as improved, one unimproved and two died. The result therefore would fully justify surgical treatment, as expectant treatment shows a very much higher death rate, with very few classed as cured or even improved.

Operative technique is simple, but is apt to be accompanied by profuse hæmorrhage, particularly when the spleen is adherent to the diaphragm, in which case the division and ligation of adhesions becomes a matter of extreme difficulty. One should always therefore be prepared to do a transfusion during the operation, if cir-

cumstances so require, or in extreme cases to abandon all efforts to remove the spleen.

However, in spite of profuse operative hæmorrhage, most observers remark that as soon as the splenic pedicle is ligated, and the spleen removed, the hæmorrhage will stop and post operative hæmorrhages are no more frequent than in ordinary routine abdominal surgery.

Very shortly after splenectomy the blood platelets, however much reduced, rapidly increase in numbers and reach a point frequently very much above the normal. Thus it will be found that in twelve, twenty-four, or thirty-six hours the platelet count will be upwards of 200,000, and may attain 800,000 or 900,000 during the course of a few days. This high count will gradually subside to approximately the normal, or even fall below that point. It has been found however that, even though a level is reached far below the normal, hæmorrhages do not return.

Case Report.—V. R., a girl, aged seven, was first seen the 4th September, 1925, with the complaint that for about three weeks she had had painful swellings in various parts which were bright red and later passed through the usual stages of a bruise. Her personal history was that she was an ordinary full term baby, breast fed for eleven months, walked at one year and talked at two years. She has had mumps, measles, pertussis and scarlet fever; all very mildly; and the past illness one year ago. She has always been energetic and healthy, except as above, and has never shown any tendency towards hæmorrhage.

Her family history is negative.

About three weeks before the 4th September, 1925, her mother noticed a "bruise" on the sole of the child's foot and the following day a similar one was seen on the calf of her leg. Other hæmorrhages rapidly appeared, at first painful and then becoming itchy, on different spots of her lower extremities. Her appetite, usually good, failed and the child became listless and tired easily.

This was her condition when first seen and, on examination, some twenty hæmorrhagic spots of various ages were found on her lower extremities ranging up to the size of a half dollar. Apart from chronically enlarged tonsils and adenoids and carious teeth, the general examination was negative, and the spleen was at no time palpable.

Treatment with calcium lactate, hæmostatic serum, rest, etc., was instituted and the next day there had been several larger hæmorrhages on the legs and body. On the 6th September the blood picture was normal, except the platelets which were 170,000. On the 7th September, as her condition was much worse and hæmorrhages, (as yet all cutaneous), had increased, it was decided to resort to transfusion and her father was used as a donor. This was followed by little reaction, but no improvement, and two days later the torso was one mass of hæmorrhages, almost confluent, and some as large as the hand. In addition she had others on her legs and arms and an urticaria, non-hæmorrhagic however, on her face. That day, the 9th September, she complained bitterly of abdominal pain, passed tarry stools and vomited blood. A platelet count this same day was 150,000 per c.mm.

As the general condition was considerably worse splenectomy was advised, but refused by the parents, and further hæmostatic serum was given without result.

On the 14th September the platelet count was 120,000 and red cells were 4,300,000 and, in spite of very considerable hæmorrhage, the hæmoglobin was 85 per cent. From the 9th September to the 17th the stools were frequent and were full of blood, and the vomitus was always blood streaked, and frequently contained clots of partially digested blood. On this day, the 17th September the urine contained so much blood that it was almost black, and the abdominal pain was very severe. The following day the platelet count was 75,000 at 9 a.m. and 40,000 in the evening with a red cell count of 2,700,000.

Splenectomy was done the following day, the 19th September under ether oxygen anæsthesia, with very little hæmorrhage and followed by little shock and no vomiting.

Owing to a misunderstanding no platelet count was done until the 23rd September when it was found to be 150,000, but from the time of operation there were no more hæmorrhages except one small one on the wrist two days later. On the 26th September the platelets numbered 800,000 and on the 13th October 500,000.

The general condition improved rapidly, the only setback being that the child developed a very acute nephritis, about one month after

operation, due to the fact that she was exposed to cold, damp weather while improperly dressed.

On the 12th December the platelets numbered 350,000 and red cells 5,500,000 with hæmoglobin 95 per cent. The child at this time had recovered her usual spirits and strength and was rapidly increasing in weight towards her normal, though the urine still shows a trace of albumin.

It will be noted that:

1st. Non-surgical treatment absolutely failed and the condition got worse.

2nd. With the exception of one small one, two days after operation, there were no hæmorrhages after the spleen had been removed.

3rd. Platelet count rose rapidly to 800,000 per c.mm. and three months later it was 350,000.

4th. That the general condition at present is, (in spite of a severe nephritis), almost restored to normal.

LITERATURE

BAAR, H., *Wien Med. Wochenshe.*, 1924, xvii, 858. BAAS, M. H., *Am. J. Dis. Child.*, 1924, xxvii, 332. BRILL, N. E., *Arch. Int. Med.*, 1923, xxxii, 939. BRILL, N. E., *Internatl. Clinics.*, 1923, xxxiv, 32. CECONI, A., *Minerva Med. Jour.*, 1925, v, 559. CLOPTON, M. B., *Ann. of Surg.*, 1925, lxxxii, 413. ENGEL, D., *Arch. fur Clin. Surg.*, 1924, cxxix, 563. FLEXNER, M., *Kentucky Med. Jour.*, 1925, xxiii, 56. GIFFIN, H. Z., *Med. Clin. N. A.*, 1925, viii, 1153. FRANK, A., *Berl. Klin. Wochenshe.*, 1916, xxvii, HITZROT, J. M., *Ann. of Surg.*, 1923, lxxviii, 185. KAZNELSON, E., *Wien Klin. Wochenshe.*, 1924, xvi, 1451. KRUMBAHAAR, *Am. Jour. Med. Sc.*, 1923, cccxxix, 166. MAYO, W. J., *Surg., Gyn. & Obstet.*, 1925, xxxx, 771. MYERSTEIN, A., *Berl. Klin. Wochenshe.*, 1924, xxxviii, 11. RICALDONI, A. AND ALBO, M., *Bull. et Mem. Soc. Med. de Paris*, 1924, xlviii, 493. SEELIGER, S., *Berl. Klin. Wochenshe.*, 1924, iii, 731. SUTHERLAND, G. A., *Lancet*, 1925, ccviii, 323. TETZNER, O., *Wien Med. Wochenshe.*, 1925, , 1228.

PYÆMIA AFTER SCARLET FEVER

H. B. CUSHING, M.D.

Montreal

THE following case is an instance of a class which has been common in the past in any hospital treating a large number of scarlet fever patients, but which with more modern treatment should become exceedingly rare.

Doreen H. was a healthy little girl of five years, of healthy parentage. She had never been previously ill but contracted measles, the rash developing on April 21st, 1925. On April 23rd when convalescent she was accidently exposed to infection from scarlet fever. Three days later, April 26th, occurred the typical onset of scarlet fever with vomiting, headache, sore throat and a sharp rise of temperature to 102°. Within twelve hours the characteristic eruption appeared. For the first three days the disease appeared to be running a moderate course but on April 29th with a further rise of temperature to 104° the disease took on the characteristic septic type with profuse purulent discharge from the nostrils and mouth and on the following day a discharge from both ears. Now there were two occasions when this sequence might have been prevented. On exposure to infection she might have been immunized by a small dose of scarlet fever antitoxin or on developing the disease its course might have been aborted by a moderate treatment dose of the serum. However, at that time the serum was difficult to obtain and was only used in the worst cases, and her case appeared at first to be of only moderate severity. To resume, following the discharge from the ears her condition appeared to improve and the temperature to moderate but on May 7th with a further rise of temperature there was evidence of involvement first of the right and then of the left mastoid, necessitating a bilateral mastoidectomy on May 9th. Her fever did not subside after the operation and on May 12th there developed an acute arthritis of the right knee, followed by arthritis of the right ankle on May 14th. On the 16th both joints were aspirated showing thick pus with numerous hæmolytic streptococci. A blood culture taken the same day revealed a copious growth of the same streptococcus. Other joints became involved in rapid succession, the left sterno-clavicular, both elbows and both ankles.

All were aspirated on several occasions and when this did not suffice and much pus was present were opened by small incisions. Her general condition became very poor; there was extreme emaciation and prostration. Her heart-beat became extremely rapid, although there was never any evidence of a definite endocarditis. Fortunately, the weather was fine so her bed was moved right out of doors into the hospital grounds and she was given general supporting treatment.

As the weeks passed there was evidence of gradual loss of virulence of the infection. Her fever slowly subsided during the month of June, her pulse became less rapid and though fresh abscesses still appeared about the joints they were not accompanied by much local or general reaction and healed rapidly on aspiration. She began to gain weight, to appear brighter and take more nourishment. Most of the joints returned entirely to normal, only the right knee, the first joint involved, still showing suppuration. In September there was a slight rise of temperature and fluid rapidly collected in the left pleural cavity. On aspiration thin pus was revealed showing a few streptococci on staining. Her chest was aspirated on three occasions and then the fluid ceased to collect. At the present time, November 15th, after six months' illness, her general condition has almost returned to normal. She has regained her colour and her weight. All the joints have been restored to normal function with the exception of the right knee, which has healed but shows partial anchylosis, only a range of movement of about forty-five degrees. Both mastoid regions show discharging sinuses and will probably require a further plastic operation but the hearing is little impaired. The heart is apparently normal.

Here then we have the case of a child developing scarlet fever immediately after measles. Probably by reason of the double infection the scarlet fever streptococci, instead of causing only a local involvement as usual, entered the bloodstream. This septicæmia may have occurred directly from the throat or through the mastoiditis. She recovered apparently through the gradual loss of virulence of the organism in the course of months. This is well illustrated in the course of the empyema healing after aspiration alone without drainage. The case illustrates well the importance of conservative measures in such cases. An unusual feature is the healing of the multiple lesions without permanent disability resulting.

The Surgical Treatment of Varicose Veins of the Female Pelvis.—After having seen about forty patients in whom at operation large pelvic varicosities were found, Ludwig A. Emge, San Francisco, is convinced that the preoperative diagnosis is by no means as easily made as he originally stated. The vagueness of the local findings makes a definite diagnosis quite difficult. Often it can be arrived at definitely only during an exploratory operation. It is therefore of greatest importance to avoid placing these patients in the Trendelenburg position until after pelvic exploration, since elevating the pelvis above the level of the shoulders will stop venous backflow, allowing the distended veins to collapse. The vast majority of varicose veins of the female pelvis are a direct result of damage to the fibro-elastic suspensorium. Only a small portion is the result of actual lesions in the walls of the venous channels. Since the fibro-elastic suspensorium is intimately attached to the pelvic peritoneum which forms the covering of the basal ligaments of the generative organs, it is possible to obtain a normal control of the veins of these organs by increasing traction on this peritoneum. This traction is obtained by shortening the sacro-uterine and associated ligaments and is aided by a round ligament transplantation. In twenty-one of twenty-three cases this procedure gave relief from symptoms. The permanence of this procedure in regard to anatomic and functional results has been established by actual inspection and by the freedom from symptoms for from one to seven years and after childbirth. The chief symptoms in the author's cases were pelvic pain, backache, dysmenorrhea and constipation.—*Jour. Am. Med. Ass.*, Nov. 28, 1925.

A COMPARATIVE STUDY OF THE EFFECT OF TWO DIFFERENT PREPARATIONS OF IODINE UPON THE PREOPERATIVE BASAL METABOLIC RATE IN EXOPHTHALMIC GOITRE

R. R. Fitzgerald, M.D.

From the Service of Dr. E. M. Eberts and the Metabolism Laboratory, Montreal General Hospital

THE use of Lugol's solution in the pre-operative management of exophthalmic goitre has produced notable changes in the clinical course of this disorder. First, the period of pre-operative rest has been much shortened. Second, many cases previously considered inoperable have been brought into the field of surgical treatment. Third, distressing postoperative reactions have virtually disappeared. It is not at present understood why the administration of this particular preparation of iodine should be accompanied by such gratifying clinical results. When a complete explanation is available, it is probable that fundamental lessons will have been learned regarding the mechanism of thyroid function.

The purpose of this study is to compare the effectiveness of Lugol's solution in lowering the pre-operative basal metabolic rate in cases of exophthalmic goitre with that of resublimed iodine given in solution in dilute hydriodic acid. While it is possible that the small number of cases here reported may lead to false conclusions, the rigid care with which the material has been selected justifies a certain confidence.

The postulates for such an investigation are: (1) That the two series of cases be as nearly parallel as possible; (2) that treatment be by one or other method exclusively; (3) that all cases be clinically and pathologically identified as exophthalmic goitre; (4) that basal metabolic rates be taken at the beginning of treatment and again at the end of the first uninterrupted fall (or rise). These conditions have been fulfilled.

The data were obtained from the records of 148 cases of goitre operated upon in the service of Dr. E. M. Eberts at the Montreal General Hospital between September 1, 1924, and July 1, 1925. Fifteen cases treated during this period with resublimed iodine in hydriodic acid were found to comply with the postulates mentioned above. A much larger number of cases treated with Lugol's was available, but for purposes of comparison the first fifteen were chosen. The series thus consists of thirty cases, fifteen for each variety of treatment. In each case thyroid tissue was removed surgically, submitted for examination, and found to contain the histopathological changes of exophthalmic goitre(*e.g.*, columnar-cell epithelial hyperplasia, diminution in quantity and changes in staining qualities of the colloid, increase in vascular connective tissue and lymphoid elements).

Lugol's solution was given in doses of from six to twenty minims daily; resublimed iodine in solution in hydriodic acid, in doses of 100 to 200 milligrams of iodine daily; the dosage in both cases being regulated to give the best clinical results.

Table I

	15 cases under Lugol's Solution	*15 cases under H. I. Solution*
Initial Fall in B.M.R.....	80%	93.3%
Initial Rise in B.M.R.....	20%	6.7%

Table 2

(*Cases in which a fall in B.M.R. occurred*)

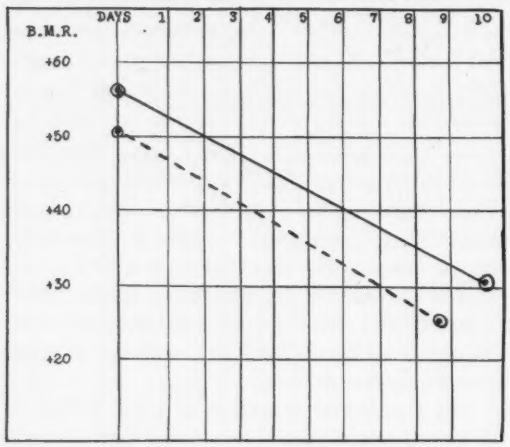
	14 cases Lugol's Solution	*14 cases H.I. Solution*
Average initial fall in B.M.R.	24.7	26.0
Average Number of days....	8.6	9.7
Average amount of iodine (mgms.)	563.5	2157.1

N.B.—The clinical end results in the two series are practically identical, although it was necessary to administer nearly four times as much iodine in the form of the solution in hydriodic acid.

When iodine is administered before operation to hospital cases of exophthalmic goitre, the basal metabolic rate generally falls gradually to a minimum in from three to fourteen days; then rises slightly and remains approximately at this level. In a small proportion of cases there is an initial rise instead of a fall. Occasionally, also, the preliminary fall is succeeded by a gradual rise to a point much above the initial reading. In the following thirty cases basal metabolic estimations were made at the beginning of treatment and

repeated approximately every five days until operation. The first maximum uninterrupted fall or rise in the basal metabolic rate in each case is recorded in the tables.

TABLE #3
Cases in which a fall in B.M.R. occurred



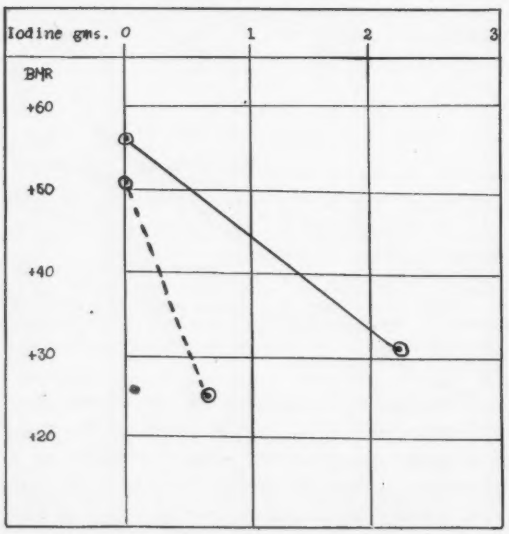
———— H.I. cases, average initial B.M.R. +56.4, average initial fall to +30.4 in 9.7 days.

– – – – – Lugol cases, average initial B.M.R. +50.7, average initial fall to +26.0 in 8.6 days.

N.B.—The fall in B.M.R. and the time interval are parallel in the two series of cases.

TABLE #4

Cases in which a fall in B.M.R. occurred



———— H.I. cases, average initial B.M.R. +56.4, average fall to +30.4, after average administration of 2157.1 mgm. iodine.

– – – – – Lugol cases, average initial B.M.R. +50.7, average fall to +26.0 after average administration of 563.5 mgm. iodine.

N.B.—Amounts of iodine required—Lugol's 1: Hydriodic acid sol'n 3.8.

TABLE 5

Cases treated with Lugol's solution with fall in B.M.R.

Series No.	*Daily Dose*	*No. Days*	*Total mgm. Iodine*	*Initial B.M.R.*	*First low B.M.R.*	*Fall*
1	*m*-XX	11	1,275	+96	+44	52
2	*m*-XX	7	811	+46	+16	30
3	*m*-XX	7	811	+33	+11	22
4	*m*-X	4	232	+59	+40	19
5	*m*-X	19	1,094	+69	+36	33
6	*m*-X	7	406	+18	+ 6	12
7	*m*-X	14	811	+19	+ 5	14
8	*m*-XX	6	695	+44	+26	18
9	*m*-XX	7	811	+48	+41	7
10	*m*-XX	5	579	+45	+20	25
11	*m*-X	8	464	+57	+ 9	48
12	*m*-X	8	464	+60	+43	17
Averages.....		8.6	563.5	+50.7	+26.0	24.7

TABLE 6

Cases treated with Lugol's Solution with rise in B.M.R.

Series No.	*Daily Dose*	*No. Days*	*Total mgm. Iodine*	*Initial B.M.R.*	*First high B.M.R.*	*Rise*
13	*m*-XX	3	348	+23	+25	2
14	*m*-X	11	637	+47	+56	9
15	*m*-X	4	232	+17	+28	11

TABLE 7

Cases treated with Hydriodic Acid Sol'n with fall in B.M.R.

Series No.	*Daily Dose*	*No. of Days*	*Total mgm. Iodine*	*Initial B.M.R.*	*First low B.M.R.*	*Fall*
16	2 c.c.	14	2,800	+49	— 1	50
17	2 c.c.	11	2,200	+44	+33	11
18	2 c.c.	6	1,200	+50	+32	18
19	2 c.c.	10	2,000	+85	+32	53
20	2 c.c.	8	1,600	+52	+29	23
21	2 c.c.	4	800	+61	+46	15
22	2 c.c.	13	2,600	+23	+ 9	14
23	2 c.c.	20	4,000	+66	+32	34
24	2 c.c.	2	400	+24	— 1	25
25	2 c.c.	5	1,000	+47	+40	7
26	2 c.c.	15	3,000	+67	+35	32
27	2 c.c.	8	1,600	+72	+45	27
28	2 c.c.	9	1,800	+62	+46	16
29	2 c.c.	11	2,200	+89	+49	40
Averages.....		9.7	2157.1	56.4	30.4	26.0

TABLE 8

Cases treated with Hydriodic Acid Sol'n with rise in B.M.R.

Series No.	*Daily Dose*	*No. of Days*	*Total mgm. Iodine*	*Initial B.M.R.*	*First high B.M.R.*	*Rise*
30	1 c.c.	7	700	+22	+42	20

Formulæ

Lugol's solution was prepared according to the B.P. directions (Squire's Companion, 1916):

(a) Iodine..... gr. XX
Pot. Iodide... gr. XXX
Aq. ad..... 1 oz.

Each minim contains 5.79 mgm. of available iodine.

(b) Hydriodic acid solution: Hydriodic acid dil. (U.S.P.) 10.2%, saturated for twenty-four hours with crystals of resublimed iodine; filter; dilute with water till 1 c.c. contains 100 mgm. iodine.

Summary

(1) Lowering of the basal metabolic rate was effected in nearly all cases, irrespective of the kind of iodine used.

(2) The two methods of treatment produced practically the same diminution in the basal metabolic rate and in about the same length of time.

(3) It was found necessary to give nearly four times as much resublimed iodine as Lugol's solution to produce the same clinical result.

A CLINICAL STUDY OF THE COLLOIDAL BENZOIN REACTION

W. R. JAFFREY, M.B.

Hamilton

THE Wassermann reaction, globulin content, cell count and pressure of the cerebro-spinal fluid as measured by millimeters of mercury, have been the chief diagnostic measures the laboratory has used to aid the clinician in diagnosing neurological lues and separating the same from other neurological lesions. Lange described his colloidal gold test in 1912 and in 1914 Lee and Hinton described a technique for performing the Lange colloidal gold test which was followed by numerous articles on this subject. Nearly every investigator has found difficulty in making a colloidal gold solution that was satisfactory in all respects. The test is used a great deal and is of great help but a simpler test that is reliable would be very welcome. The Emanuel mastic test was described in 1917 but has not found great favour.

In 1921 Guillain, Laroche and Lechelle described a colloidal benzoin test which is very simple and in my hands seems to give reliable data; this test has not come into general use and this study was done to determine its reliability and confirm or nullify the findings of other workers. Of course this cannot take into consideration the essential inequality of the technique of the various workers. At the commencement of this investigation it was thought this test would assist in corroborating the clinical and other serological diagnoses but as the work advanced it seemed that a clinical diagnosis could almost be built up on the result of the test.

The technique is very simple and does not necessitate elaborate laboratory equipment, but chemically clean glassware is essential. Freshly distilled water carefully protected from the atmosphere is the only diluent required. The spinal fluid should be absolutely blood free, that is cell and serum free, as these will give a broader zone and be unreliable. It should be as fresh as possible, though it was found that fluids twenty-four hours old give reliable readings but the zone was a little broader. Experiments were carried out to investigate these factors and will be demonstrated graphically in the accompanying chart. Numerous repeat examinations were made on fluids and repeated punctures and on the whole the repeated test did not vary appreciably.

The reagent consists of a ten per cent tincture of gum benzoin in absolute ethyl alcohol, extracted with frequent shaking for one week and then filtered. Two-tenths of a cubic centimeter of this tincture is added drop by drop to fifteen cubic centimeters of distilled water in a 50 c.c. flask, agitating frequently and mixing well with the pipette; the flask is then placed in a hot water bath to bring it up to blood temperature. Thirteen three-inch Wassermann test tubes are now set up in a rack and into the first is pipetted 0.25 c.c. of distilled water, into the next 0.5 c.c., the next 1.5 c.c. and into each of the remaining tubes 1.0 c.c. from left to right. Of the spinal fluid 0.75 c.c. is now added to the first tube, 0.5 c.c. to the second and 0.5 c.c. to the third; after mixing 1.0 c.c. is removed from the third and mixed with the distilled water in the fourth tube; 1.0 c.c. from the fourth tube is taken, after mixing well, and placed in the fifth tube and so on. This dilution is continued to the twelfth tube from which the extra 1.0 c.c. is thrown out

XUM

and the thirteenth tube acts as a control on the reagent dilution. Higher dilutions may be made if necessary, but as the usual rack holds twelve tubes, and the reaction seldom goes further, twelve tubes have been found sufficient in this investigation. To each of these tubes is now added 1.0 c.c. of the reagent dilution and the tubes well agitated and set aside at room temperature. The flocculation usually commences in about one hour and may continue for about six hours; further flocculation rarely occurs after this time. It is preferable to make final readings after standing overnight. Readings are recorded for each tube as to the extent of flocculation that has taken place, by the following symbols. First, complete sedimentation with a clear supernatant fluid which will be designated as "three plus." Second, partial sedimentation showing a slight milkiness in the supernatant fluid will be designated as "two plus." Third, when a few flakes or flocculent masses are seen and the supernatant fluid is nearly as milky as the control tube, this will be designated as "one plus." When no reaction takes place the tubes remain as milky as the control tube; this is recorded as zero. Thus thirteen symbols, including the control tube, and each tube reading from left to right will show zones where the reaction has taken place. Negative and control tubes will remain in their original opaque condition for seventy-two hours with no evidence of sedimentation or flocculation.

As the investigation proceeded it became evident that the zone reactions placed various cases in a class by themselves: a classification of the cases by this zone grouping was attempted and it was found that if they were listed as tabetic, taboparetic, pareto-tabetic and paretic that the zone moved from right to left and also agreed with the clinical diagnosis. From these observations the number of tubes affected in a zone

CLASS	CASE Nº	TUBE NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13	GLOBULIN	WASSERMANN C.S.F.	WASSERMANN BLOOD	DIAGNOSIS
TABETIC	1	0	0	0	0	0	0	0	+++	+++	++	0	0	0	POSITIVE	4 PLUS	NEG.	TABES
	2	0	0	0	0	0	0	0	0	+++	+++	0	0	0	POSITIVE	4 PLUS	1 PLUS	TABES
	3	0	0	0	0	0	0	0	+++	+++	0	0	0	0	POSITIVE	4 PLUS	NEG.	TABES
TABO-PARETIC	4	0	0	+++	+	0	0	0	+++	+++	++	++	0	0	POSITIVE	4 PLUS	4 PLUS	TABES
PARETO-TABETIC	5	0	0	+++	+++	0	0	++	+++	+++	0	0	0	0	POSITIVE	4 PLUS	4 PLUS	PARESIS
	6	++	+++	+++	+++	++	+++	+++	+++	+++	+++	0	0	0	POSITIVE	4 PLUS	4 PLUS	PARESIS
	7	0	+	+	+	0	0	+++	+++	+++	+++	+	0	0	POSITIVE	4 PLUS	4 PLUS	PARESIS
	8	0	0	+++	+++	0	0	+++	+++	+++	0	0	0	0	POSITIVE	4 PLUS	4 PLUS	PARESIS
PARETIC	9	0	++	+++	0	0	0	0	0	0	0	0	0	0	POSITIVE	4 PLUS	NEG.	PARESIS
	10	0	++	+++	+++	+	0	+	+++	0	0	0	0	0	POSITIVE	4 PLUS	4 PLUS	PARESIS
	11	0	0	+++	0	0	0	+	+	+	0	0	0	0	POSITIVE	4 PLUS	4 PLUS	PARESIS
	12	+	+++	+++	+++	0	0	+	+++	+	0	0	0	0	POSITIVE	4 PLUS	NEG.	PARESIS
	13	0	++	+++	+++	0	0	0	+++	+	0	0	0	0	POSITIVE	4 PLUS	4 PLUS	PARESIS
NO NEURO-SYPHILIS	14	0	0	0	0	0	0	0	0	0	0	0	0	0	NEGATIVE	NEG.	NEG.	INVOL. PSYCHOSIS
	15	0	0	0	0	0	0	0	0	0	0	0	0	0	NEGATIVE	NEG.	NEG	TREATED LUES
	16	0	0	0	0	0	0	0	0	0	0	0	0	0	NEGATIVE	NEG.	NEG.	PSYCHO-NEUROSIS
	17	0	0	0	0	0	0	0	0	0	0	0	0	0	NEGATIVE	NEG	NEG.	EPILEPTIC
	18	0	0	0	0	0	0	0	0	0	0	0	0	0	NEGATIVE	NEG	NEG.	TOXIC IRITIS
EXPERIMENTAL																		
	2	0	0	0	0	+++	+++	+++	+++	+++	+++	+++	+++	0	BLOODY SPINAL FLUID			
	2	0	0	0	0	0	0	0	+++	+++	+++	+++	+++	0	BLOODY FLUID CLEARED BY CENTRIFUGATION			
NEGATIVE WASS'N		0	0	0	+	++	+++	+++	+++	0	0	0	0	0	AVERAGE READING OF BLOOD SERUM			
POSITIVE WASS'N		0	0	++	+++	+++	+++	+++	+++	+	0	0	0	0	AVERAGE READING OF BLOOD SERUM			
	6	++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	++	0	REPEAT ON FLUID 24 HOURS OLD			
	1	0	0	0	0	0	0	0	+++	+++	++	0	0	0	REPEAT, PUNCTURE 3 DAYS LATER			

N.B. "0" denotes No Flocculation — "+" Slight — "++" Moderate — "+++" Complete

appears also to have a bearing on the severity of the patient's condition and the prognosis.

It appears that when the interstitial structures, meninges and spinal cord, are involved in the syphilitic progress, that the right zone, in the vicinity of the eighth dilution, is affected to varying degrees; if the involvement is purely parenchymatous then the left zone in the vicinity of the third dilution is the one in which the flocculation occurs. We see cases in which there seems to be involvement of both these portions of the nervous system, as evidenced in the test when a distinct tabetic zone reaction may be accompanied by a slight reaction in one or more tubes of the paretic zone or vice-versa, and the patient thought to be tabetic may show this evidence of incipient paresis which we were not expecting. This may be of great assistance in our prognosis of the case and the method of treatment. These factors seem very evident in this study and it is hoped they may be corroborated as the use of this test is continued.

Occasionally one tube will flocculate very early and in these cases it is well to repeat the test although usually the repeated test will show the same phenomenon, but some extraneous substance in the tube may be the cause and a repeated test will obviate any error from this cause. Also in a definite case of neuro-syphilis giving a negative finding the test should be done over. This occurrence was met with on only one occasion in this work and was in a case in which spinal fluid and blood Wassermann were both negative before treatment was begun, the globulin and cell count being positive, but a diagnosis of tabes was made and after institution of treatment the spinal fluid Wassermann became positive.

Every laboratory test has its peculiarities and the colloidal benzoin test is no exception.

The tests shown in chart form are from a variety of cases chosen from this investigation and are demonstrative of the zones affected by the spinal fluid of the various clinical types and a short review of some of them will not be amiss.

Case 3 was clinically a typical tabetic but a positive globulin test was the only laboratory finding. After Swift-Ellis treatment was instituted the fluid gave a four plus Wassermann reaction.

Case 4 was a typical tabetic with rather an acute onset and the patient was in a very irritable condition. Repeated examinations after Swift-Ellis treatment revealed a lessening of the reaction in the paretic zone with coincident clinical improvement.

Case 6 was put under malarial treatment after the spinal fluid examination, but had to be taken off as his physical condition was not good. He has improved to some extent and is being treated with tryparsamide.

Case 7 is a pareto-tabetic who on two occasions has had severe seizures of an epileptiform nature. He has had considerable treatment and shows marked tabetic symptoms.

Cases 8 and *11* have each had considerable treatment with arsphenamine, mercury, bismuth and tryparsamide and are now undergoing malarial treatment.

Case 9 was under malarial treatment when the puncture was done and had a temperature of 105°F. He had had no antisyphilitic treatment.

Cases 10 and *13* are both paretics in rather good condition some time after malarial treatment.

Case 12 has had extensive treatment with tryparsamide, arsphenamine, etc., and has had a good remission but shows some irritability and is being given malarial treatment.

Case 15 has been under my observation for nine years and was treated for syphilis in the secondary stage. His blood Wassermann has been negative for eight years.

Case 18 has had an iritis for one year. It has been diagnosed at various times as tubercular, toxic, and syphilitic. The patient gives no history of syphilis and has had repeated negative blood findings and shows no response to antisyphilitic treatment.

Conclusion.—The colloidal benzoin test of the spinal fluid is not a very complicated laboratory procedure and can be done with very little trouble and equipment. The test gives quite constant readings as repeated tests have shown. It gives a distinct zone in tabes and paresis and apparently shows when the interstitial and parenchymatous types of syphilis invade each other's territory.

In a study of the chart the following points are noted: True tabetics may show no parenchymal involvement. True paretics may show no interstitial involvement. Tabetics may show slight parenchymal involvement, and paretics may show slight interstitial involvement. This

is usually very evident in the patient's physical condition. So far in this investigation the Wassermann test and globulin test on the spinal fluid have been positive in each case in which the colloidal benzoin reaction has been positive and vice-versa.

It is to be hoped this test will be given a fair trial by other workers because of its simplicity and apparent diagnostic value.

The major portion of this investigation was done with the co-operation of the staff of the Ontario Hospital, Hamilton, and I desire to tender my thanks for their criticisms and suggestions.

Induced Hyperthyroidism.—In order to determine if possible whether or not harm may result from the routine use of iodine in the prophylaxis of goitre as it has been carried out in the Cleveland district since 1917, a study has been made by O. P. Kimball, Cleveland, of those cases of hyperthyroidism in which some form of iodine has been administered. In 309 cases it appeared that the symptoms of hyperthyroidism had been precipitated or made worse by the use of iodine. In 210 cases the goitres were of long standing, the average period being eighteen years. In each of these cases, the gland was clinically or microscopically adenomatous. In this group of 309 cases, there were six cases in which the only source of iodine had been iodized salt. All of these patients were women past forty years of age, and each had a nodular goitre of long standing. Thirty-seven patients had taken iodine of their own volition; several had taken a solution of sodium iodid, but the great majority had used repeated external applications of tincture of iodine over the goitre. The most striking fact brought out by this study is that five-sixths of the patients having induced hyperthyroidism had been taking iodine as prescribed by their physicians. In twenty-one cases of goitres of long standing, compound solution of iodine (Lugol's solution) had been given for weeks, in doses of from five to ten drops, three times a day. In many cases, five drops of the solution of sodium iodid, three times a day, had been prescribed, and a considerable number of these patients had taken this medication for as long as three or four months. One boy, aged sixteen years, who had a congenital adenoma, had taken syrup of ferrous iodid, 1 dram (3.75 c.c.), three times daily, continuously for eighteen months. In 84 per cent of the cases of toxic goitre the physicians had prescribed large doses of iodine to be taken over a long period of time, and this treatment had been given in spite of the fact that the goitre was of long standing and in many cases, nodular in type. Kimball says that, in all cases of iodine treatment, the dosage should be considered in terms of milligrams. The maximum dosage for an adult, provided there are no contraindications, is 10 mg. daily for not longer than one month, during which time the patient should be under very close observation. Long standing goitres in adults should be treated surgically, if any symptoms of hyperthyroidism are present. In young adults and in adolescents, medical treatment should first be tried. There is apparently no danger in the routine prophylaxis of goitre as it is carried out through the schools; namely, the administration of 10 mg. of iodine weekly. Among forty cases of exophthalmic goitre in children, only one child had been given iodine. In this case the patient had received the prophylactic treatment of 10 mg. of iodine a week for one month, three months before the onset of the acute hyperthyroidism, and a review of the history shows that the onset of the hyperthyroidism in this case was a coincidence and not a result of the month of iodine treatment. In the medical treatment of goitre in adults, Kimball emphasizes the importance of care in the selection of cases; the use of small amounts of iodine for not longer than one month, and the necessity of close observation throughout this period.—*Jour. Am. Med. Ass.*, Nov. 28, 1925.

Case Reports

PROFUSE HÆMOPTYSIS ARISING FROM A SMALL AREA OF BRONCHIECTASIS FOLLOWED BY BRAIN ABSCESS

A. T. Henderson, M. D.

Royal Victoria Hospital, Montreal.

The patient was a girl of seventeen years, who was admitted to the medical ward of the Royal Victoria Hospital on the 27th of October, 1925, with the history of repeated pulmonary hæmorrhages for a fortnight. In this short time, there had been in all, eighteen such hæmorrhages, on several occasions amounting to nearly a cupful. In spite of this, she had continued at work, as a clerk, with the exception of two or three days.

The personal history was as follows:—she had had an attack of pneumonia as an infant; later, measles, chicken-pox and whooping cough; and influenza at the age of ten. For the next three or four winters she had attacks of bronchitis. At fourteen she began to have attacks of "bronchial asthma," characterized by spasms of dsypnoea and coughing, with constriction of the chest. In the intervals between attacks, she was free from cough, and was well. During the last year, the dyspnoea has been less pronounced but there have been paroxysms of dry cough. In May of this year, she had an attack of dry pleurisy, which was not at all severe, lasting but two weeks and clearing satisfactorily.

The family history was unimportant.

The patient walked into the hospital on the morning of October 27th, in a weakened condition looking pale and ill. On account of her history of hæmoptysis, she was immediately put to bed on a diet of cold liquids. She appeared undernourished and somewhat undeveloped; subcutaneous fat was scanty. A thorough examination of the chest was not made at this time, but pleural friction was reported at both bases. Slight dyspnoea was noticed, but no clubbing; her temperature was 99°F. pulse 120, respiration 24. Urinalysis was negative.

That afternoon, there was a profuse hæmoptysis of bright red, frothy blood, measuring 400 c.c. On the two succeeding days, there were two smaller hæmorrhages of 100 and 150 c.c. No tubercle bacilli were demonstrated. Her temperature on these days was 100.3° and 99.2°, the pulse 140 and 120. The blood count showed hæmoglobin 50 per cent, red blood cells, 3,190,000, white blood cells 6,600; the differential count was normal.

There was no recurrence of the hæmoptysis, but during the first seven or eight days of November the cough became troublesome and on several occasions almost incessant and difficult to suppress. Paroxysms were apt to occur when she was brought back into the ward from the balcony; these were checked by adrenalin. On November 7th a thorough examination was made, and this revealed at the base of the right inferior lobe an area of impaired resonance for upwards for one and a half inches. Over this same area, there was slight intensification of the breath sounds and whispered voice, but no adventitious sounds were heard. The heart was not enlarged to percussion and the sounds were clear except for the presence of a hæmic murmur. Pulse rate had for a week fluctuated between 100 and 110, with no temperature above 99 except once when it rose to 99.2. Blood pressure reading was 108-55. X-ray report of the chest was as follows: "The heart is moderately small; the aorta and diaphragm appear normal; the bronchial tree is intensified to both bases. The upper half of each lung is free from any appearance of tuberculosis. There is a slight mottling at the left base, and a mottled area about two inches above the right diaphragm from which probably the hæmoptysis came."

On November 9th the patient first complained of headache, apparently moderately severe, and partially relieved by the ordinary analgesics. On November 12th it became more severe, and she vomited twice. The ears on this date were pronounced negative.

On the 13th and 14th the headache was more pronounced, particularly on the right side, and there was tenderness over the right parietal bone; the knee jerks appeared slightly increased and the left abdominal reflex seemed impaired. The next day, headache was severe and more or

less continuous and only partially relieved by analgesics. Vomiting had occurred several times in the preceding forty-eight hours. The temperature was normal and had not been for a fortnight above 99° except once. The pulse rate which had averaged 100-120 was, on this day, 90, while the blood pressure reading was 115-60. On examination of the nervous system, no definite stiffness of the neck was found, and no Kernig; the left abdominal reflex was absent, and the knee jerks increased. A fairly sustained double ankle clonus was noted, and a doubtful Babinski reflex on the left side. The white blood cells numbered 15,400.

On November 16th pain and tenderness was complained of over the right side and back of the head. The patient was drowsy and in semi-delirium, but when aroused seemed clear. A lumbar puncture revealed clear fluid under slightly increased pressure; Pandy's reaction was negative, and the cell count only 6. Dr. Gordon Byers on this date reported a double-sided incipient optic neuritis, more pronounced on the left side.

On November 17th the neck was stiff and Kernig's sign was positive. There was no paralysis. The pulse had dropped to between 80 and 90, and the systolic blood pressure was, in the morning and afternoon, 126 and 132. A second x-ray of the chest showed "slightly increased density all over the left lung, which does not suggest tuberculosis."

The following day Dr. Russel's examination of the nervous system showed a definite degree of left-sided paresis: "there is marked asymmetry of the face in voluntary movement, with weakness of the left angle of the mouth, and in closure of the left eye; the tongue is straight. There is definite weakness of the left arm and leg, and increase of tone in the left leg with ankle clonus. There is a loss of the sense of position in left arm and in the leg to passive movement. She cannot distinguish objects placed in her left hand, but can perfectly in right hand.

Reflexes: Left extensor, plantar response, right flexion. The slowing of the pulse, with marked tenderness in the posterior parietal and occipital region on the right side suggests increased intracranial pressure, localized to the right cerebrum, postcentral, probably abscess(?) or metastatic tumour. A right sided exploration and decompression is worth considering in the hope of its being an abscess."

A second lumbar puncture on this date showed 4 c.c. of clear fluid, pressure increased, Pandy negative, cell count 15 and 25, (two observers) mostly lymphocytes. On November 19th there was little if any change. The pulse average was 80, there was no fever; there was some incontinence of urine. A third lumbar puncture gave 55 cells, with negative globulin.

November 21st, patient semistuporose but could be aroused, and then responded. The neck was stiff, and head retraction was marked. The right pupil was widely dilated and fixed. The fundi were again examined and showed the same appearance as before. A fourth lumbar puncture showed 17 cells, with a negative globulin and the pressure apparently normal. On the evening of this date there was a perforation of the left ear drum and slight discharge of pus.

On November 22nd she was very quiet all day and took fluids well. For a day or two she seemed inclined to lie on her left side; head retraction was marked. The hemiparesis on this side was no more marked then when first observed, with ptosis of the right upper lid, however, and a widely dilated pupil. A third nerve involvement was noted and loss of stereognostic sense in the left hand; also absence of the left abdominal reflexes and a left sided Babinski. Examination of the chest revealed nothing new. Pulse was 140, weak and irregular. Another (fifth) lumbar puncture showed 16 cells, negative Pandy and pressure only slightly plus. The sugar content was reduced.

She remained in this condition, for the most part in semi-stupor, but when aroused, she appeared fairly clear and showed some interest in food and people. In the early morning of November 24th, after drinking nourishment, she suddenly had another pulmonary hæmorrhage and died.

The Wassermann test on blood and cerebrospinal fluid had both been found negative and tests to tuberculin mg. 0.1 and mg. 1.0 were both negative.

At autopsy, there were some adhesions in the left pleura, and a small area of bronchiectasis not much larger than a walnut was discovered in the left lower lobe, with evidence of recent hæmorrhage in the left bronchial tree; no eroded vessel was discovered; there were a few small

peribronchial abscesses. In the brain a large abscess cavity filled with about 5 or 6 ounces of greenish pus was discovered in the right cerebrum, the centre of which on the surface corresponded fairly closely to the angular gyrus. This cavity burrowed well forward so as to encroach on the pre-Rolandic area subcortically, which probably accounted for the hemiplegia.

Comment.—The course of events in this case is instructive. With the repeated hæmoptysis and the physical signs, and the x-ray report, it was natural to consider hilus tuberculosis first. This fundamental misconception led us, with the onset of headache and vomiting, to think of a tuberculous meningitis. By the 15th and 16th of November the brain condition looked more like abscess or possibly tumour. Still we could not free ourselves from the original idea, and so operation was deferred until, when the indication seemed clear, it was too late.

It was remarkable that such frequent and copious hæmorrhages should have arisen from what after all was a very small area of bronchiectasis. It is not unlikely that this condition originated when she had influenza at ten, and was probably the source of her asthma, the history of which suggested a bacterial origin rather than a specific sensitization. That hæmorrhages may be free in bronchiectasis is of course well known, and the frequency with which brain abscess follows a septic process in the lung is tragically familiar.

CASE OF ACUTE LYMPHATIC LEUKÆMIA; DEATH IN FIVE WEEKS.

L. J. Breslin, M.B.

Toronto

M.K.—age twenty years, Jewish student, consulted me at my office on August the 9th, 1925, complaining of being tired and of suffering from general malaise for some few days. His previous health had been very good with the exception of one attack of acute rheumatism when a child which had left him with a pronounced mitral regurgitant murmur and a cardiac hypertrophy of detectable degree. He had had for some years a distinct goitre of adolescence, and in recent years had had several attacks of mild tonsillitis. For several weeks prior to visiting me he had been off on a vacation and had been doing active manual labour without any complaint of weakness or exhaustion.

History of present attack.—Five or six days ago he noted that he was tiring easily and felt indisposed. As far as he could recollect there were no other symptoms. Within the last two days there was some slight soreness in the pharynx.

On examination he was a rather pale young man with flushed cheeks and an afternoon temperature of 99.2° and pulse of 90 to 95. There was a peculiar superficial ulceration of the whole tonsillar surface giving it a granular greyish white appearance. A swab failed to remove the surface of this ulceration: there was no distinct membrane or signs of follicular inflammation; at this time there was no distinct glandular enlargement, and the spleen was not palpable, the heart was definitely enlarged to percussion, the apex beat out to the left, there was a loud mitral systolic murmur well heard over the apex and base and out towards the axilla; this murmur had been in existence for years. There were no petechiæ and no hemorrhages. The patient was put to bed, well purged and given ten grains of aspirin four times a day; the temperature reached 101°F. dropping to 99°F. within three days, and against my advice he left his bed, shaved and went out. An hour after going out there was a severe chill and temperature suddenly went up to 103°, pulse to 130. He was seen again three days later, and it was noted that he was tender to percussion over the sternum, the next day there were several small petechiæ over the chest, the spleen was felt just below the costal border, not markedly enlarged and not tender. The mitral murmur was well pronounced, and it seemed now that the systolic murmur could be heard in the aortic area; nothing was found in the urine. A blood count was made which showed the red blood cells to be 3,800,000, white blood cells 40,000, Hb. 60%, the blood culture was negative, Widal and Wassermann tests were negative. There was no glandular enlargement as yet in evidence, and with tenderness over the sternum, the heart condition and the high blood count, with petechiæ and enlarging spleen, endocarditis was thought of. By the time the differential count was made however, one felt that causes other than bacterial endocarditis must be at work, as there was an inordinately high percentage of the lymphoblastic cells; further than that, the pallor had become extreme and was quite unlike the muddy colour associated with bacterial endocarditis. Ten days later the

picture was much more definitely drawn; the spleen enlarged rapidly and it extended almost to the umbilicus as a large smooth tumour. The pallor was pronounced; a single large soft gland developed in the left axilla, and the posterior glands of the neck could be felt as soft enlarging tumours; the glands in the right axilla were hardly larger than normal. The temperature had now begun to rise higher, 105.6°, there were daily chills and three or four slight nose bleeds. He now complained of extreme weakness, and pain in the abdomen, over the sternum, in the jaw and in the limbs. He went rapidly downhill and died on September the 13th, five weeks after the onset of his illness. The white blood count, moderately increased in the early days, quickly ran up to 200 and 300,000 white cells per cubic millimetre and the slide showed a picture typical of acute lymphatic leukæmia.* At the time of death the spleen had reached to two inches below the umbilicus, but the swelling of the lymphatic glands varied very little during the whole illness and never reached the extent of producing visible tumours.

Cases of acute lymphatic leukæmia are by no means rare, though always appalling in the rapid progression of the disease. Cases fatal in ten days to three weeks have been reported; these belong more usually to the younger years, though acutely fatal lymphatic leukæmia is not unknown in adults. The point of chief interest in this case was the very definite tenderness of the sternum and the quickly enlarging spleen, in association with an old mitral lesion. Save for the pallor as distinguished from the earthy colour of subacute bacterial endocarditis, he impressed one very strongly with the idea, that on top of his old lesion a new endocardial affection was developing. Even the blood count of the first few days is not out of keeping with the state of affairs at times produced as part of an infective mononucleosis, though as the days passed the quick climb in the white count made one realize that a leukæmia was developing. The rapid growth of the splenic tumour is distinctly unusual, and in this case the tumour had reached a large size in the matter of a very few days. It is not uncommon on the other hand to find that the enlargement of the glands in cases of acute lymphatic leukæmia may almost escape notice and this was the condition in our case. As is usually noted in the acute cases the increase of the large mononuclear cells was the feature of the disease. The differentiation of an early leukæmia from certain infections may be extremely difficult in some instances. Cabot, Turck, and Ireland, detail cases of infections in which the white cells mounted to 90 or 100,000 per c. mm with 80 to 90 per cent of lymphocytes in the differential count. Acute infectious mononucleosis may give remarkable blood pictures with the swollen glands, and many conditions have been recorded as being able to produce temporary leukæmia-like increase in the white blood cells. In many of these unusual affections recovery has shown that they were not leukæmias; even the most experienced hæmatologist may require time to come to correct conclusions; the oxydase reaction in the white cells from the marrow may be of value in these difficult cases; it suggests leukæmia rather than infection: it is not common to have these leucocytotic cases attended with large spleen and in our own case this rapid splenic enlargement was a determining point in the diagnosis of leukæmia. My thanks are due to Dr. F. Clarkson and Dr. Ferguson of the Western Hospital for their help in deciphering the blood pictures and the indications of this case.

*Polymorphonuclear cells 20 per cent lymphocytes almost entirely large type 80 per cent red blood cells 3,800,000, Hb. 30 per cent.

ABSCESS OF THE LUNG—REPORT OF A CASE IN AN INFANT TWENTY-FOUR DAYS OF AGE

R. R. Struthers, M.D.

Montreal

Non-tuberculous abscess of the lung of any considerable size is a very exceptional occurrence in early life, according to Griffith[1] who recalls only three instances in very young children. So far as we can learn only one case of acute pyogenic lung abscess in an infant under one year old has been reported in the last ten years.[2] The following case seems of sufficient rarity to warrant reporting it.

Montreal General Hospital.—Hospital No.3353-25. Baby M. C.—a coloured male, aged twenty-four days, was born at term a normal, healthy baby, and was breast fed throughout its life. He was examined by a pediatrist at a routine "well baby" conference, at the age of nineteen days, and was found to be normal.

On the twenty-fourth day of life the mother

brought the child to a dispensary because he was nursing poorly, seemed to be ill, and had a cough, and marked respiratory distress which had been present for the past four days. The temperature had not been taken, though the rectal temperature at the time of examination was 101°. The onset of the illness had been sudden, and was accompanied by considerable pain, but there was no vomiting. Examination at that time showed the child *in extremis*, with marked respiratory distress and expiratory grunt and considerable dehydration. There was limitation of movement of the whole left chest with indrawing of the lower left costal margin, and the percussion note was markedly impaired over this side, both front and back. There was only a small area of resonance in the left axilla. The breath sounds were absent over the whole left side of the thorax, and there was some displacement of the heart to the right. The right lung was resonant, with coarse breath sounds.

A diagnosis of congenital diaphragmatic hernia of the left side was suggested, and the child was admitted into the Montreal General Hospital, on July 21st, 1925.

Examination there revealed less marked impairment of resonance over the left upper lobe than at the previous examination.

The x-ray examination did not show any evidence of consolidation which would suggest a pneumonic process. There were, however, on the left side some shadows, apparently above the level of the diaphragm, which were thought to be due to gas bubbles in the stomach. A barium series was suggested, but the child died suddenly at nine p.m. on the day of admission.

Post mortem report Montreal General Hospital, The most interesting findings lay within the thorax. The left pleural cavity contained approximately 100 c.c. of turbid, yellowish brown fluid. The visceral pleuræ were covered with an acute, yellowish, fibrinous exudate which loosely united the two pleural surfaces. Near the base of the left lung posteriorly there was an opening in the visceral pleura 5 to 10 c.m. in diameter, from which on pressure a frothy, purulent fluid escaped. On section, the lower left lobe showed on pressure many pinpoint areas of purulent exudate which escaped from the bronchioles. There was also a loculated abscess cavity 3 by 2 c.m. which communicated directly with the pleural cavity through a sinus. The cavity contained a thick, purulent material. This lesion, as well as that of the tract was greyish white, irregular and shaggy. The lung tissue about the abscess was firmer than elsewhere. The whole lower lobe, besides the presence of an acute exudate in the bronchioles, showed atelectasis.

Macroscopical diagnosis.—Atelectasis of the left lower lobe: acute bronchiolitis and broncho-pneumonia of the left lower lobe: acute pyogenic abscess of the left lower lobe: rupture of the abscess into the pleura: empyema of the left thoracic cavity.

Sections were made through the abscess cavity to include the sinus leading from it. Throughout these areas the lung tissue was completely destroyed and replaced by a necrotic material, blood cells and serum. The wall of the abscess cavity and the sinus is composed internally of necrotic tissue and the products of acute inflammation. Both the abscess cavity and the sinus are fairly sharply separated from the adjacent lung tissue which shows atelectasis, and various degrees of acute cellular infiltration in the alveoli. The pleura about the abscess shows an acute exudate.

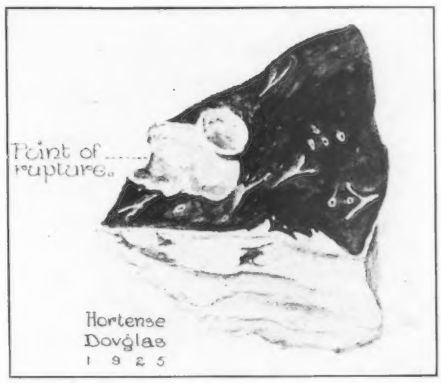


FIG. 1.—Photograph of painting of the abscess and sinus leading from it in the left lower lobe.

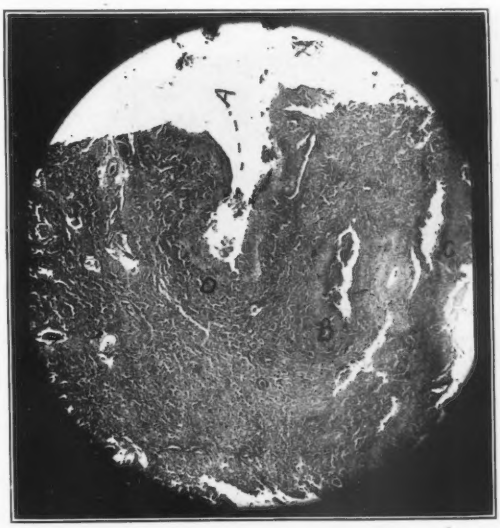


FIG. 2.—Microphotograph to show abscess of lung which ruptured into the pleural cavity along track A. B. and C. isolated abscesses. Pyogenic membrane at D.

Bacteriology—Direct smears from the empyema cavity showed pneumococcus and on culture pneumococcus and staphylococcus albus were obtained. The pneumococcus was not typed.

Remarks.—The presence of air bubble shadows above the level of the diaphragm is readily explained by the autopsy findings.

I am indebted to Dr. L. J. Rhea, Director of the Pathological Department of the Montreal

General Hospital, for his help, and his kindness in supplying the autopsy report and the photographs.

BIBLIOGRAPHY

(1). GRIFFITH, J. P. CROZER. *Diseases of Infants and Children.* Vol 2, Page 96. W. B. Saunders, 1920. (2) Ross, S. G. *Medical Clinics of North America.* May, 1924.

ABORTION OF ONE TWIN; DELIVERY OF SECOND AT TERM

M. G. BURRIS, B.A., M.D.

Demonstrator in Clinical Surgery, Dalhousie University, Halifax

On June 30, 1925, I was called to see a young married woman—a multipara (3)—who gave me the following history:

On April 26, 1925, after two days of profuse vaginal bleeding and mild colicky pain in the lower abdomen, she expelled a small fœtus about three inches long, with a small placenta, the two being connected by a cord about six inches long. The head, body, arms, hands and legs of the fœtus were definitely formed but the feet were absent or not yet formed. Bleeding and pain ceased promptly and three days after the abortion took place the patient travelled from Boston to Halifax without further mishap.

She consulted me on account of increasing size of the abdomen, and, as she believed, because she felt fœtal movements. On examination the uterus was found to be enlarged to the size of a four and a half to five months pregnancy. Fœtal parts could be felt per vaginam and I plainly felt fœtal movements when making the examination. Pregnancy continued normally and on November 4, 1925, she was confined, giving birth to a normal girl baby weighing seven pounds. Labour was tedious and was completed by a low forceps operation.

I examined patient carefully a few days ago (December 20). The external genitals were normal, cervix normal, uterus in normal position and of normal size and contour. Since the uterine body could be very plainly palpated a sound was not passed. The appendages were normal. There was no pelvic mass or tumour.

Apparently she had been pregnant with twins on April 26th, but aborted one fœtus at that time, while the other was retained and continued to a normal full term confinement. I may add that the patient is well known to me, and that I have no doubt as to her sincerity in the history which she gave me.

FRACTURE OF SEMILUNAR BONE DUE TO INDIRECT VIOLENCE

J. H. PALMER, M.D.

Rossland, B.C.

A fracture of the semilunar bone due to indirect violence is of such rare occurrence that the following case appears worth recording.

R. C., a laborer, aged thirty-three, was, one day during the first week in September 1925, lifting an hundred-pound sack of cement from the ground with both hands, when he felt a pain in his right wrist, which he thought was a sprain. It was not severe enough at the time to cause him to stop work, nor even to seek medical advice regarding it. On November 15th, he called at the office complaining that he was unable to do his work properly on account of pain and weakness in the right wrist, which had been getting worse since the above-mentioned accident. The pain, though present to a certain extent all the time, was worst on flexion and was referred to the centre of the wrist.

On examination there was tenderness over the carpus both anteriorly and posteriorly. The strength of the right hand-grasp was about fifty per cent that of the left. Movements of the wrist laterally were normal, but antero-posteriorly they were restricted to about twenty-five per cent those of the other side. The accompanying Roentgenogram was taken in the position of extreme flexion and shows the anterior horn of the semilunar separated from the body of the bone.

Retrospect

THE MECHANISM OF PIGMENT FORMATION IN THE SKIN.*

A Review

J. F. Burgess, M.B.

An autochthonous pigment, melanin, is normally present in the cytoplasm of the cells of the basal layer of the epidermis, the germinal layer of the hair bulbs, and the cells of the hair matrix, and where there is marked pigmentation, pigment granules may also occur in the polyhedral cells of the prickle cell layer. This pigment, melanin, was originally considered to be of epidermal origin, for Erasmus Wilson[1] in his textbook in 1852 says: "There is another feature in the history of the development of the epidermal cell, which I find peculiarly interesting. This relates to an organic change taking place in the assimilative powers of the primitive granules, by which the latter are altered in their colour, in short, are converted into pigment granules. Pigment granules appear to differ in no respect from the primitive granules, excepting in tint of colour and chemical composition." Pigment is also found in certain cells in the upper layers of the cutis, which are scattered here and there among the collagen fibres. Kolliker[2] in 1860, first put forward the view that melanin was formed in these cells in the upper layers of the cutis, and from there was transported to the epidermis. Ehrmann[3] also supported this view, believing that melanin was formed only in these melanoblasts of the cutis, and that they acted as wandering cells and transported the pigment to the cells of the basal layer of the epidermis. The upholders of the epidermal origin of melanin looked on these pigment-bearing cells of the cutis as cells which were not able to produce pigment, but rather that they carried away the excess of pigment from the epidermis.

Meirowsky[4] demonstrated beyond any question of doubt that melanin is formed by epidermal cells, but the origin of the pigment found in the pigment-bearing cells of the cutis is still a subject for argument and surmise.

*Read at the meeting of the Lafleur Reporting Society of Montreal, November, 1925.

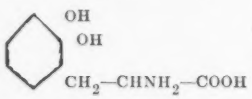
From the Departments of Dermatology and Pathology of the Montreal General Hospital.

It is due to the researches of Bloch[5] that further light has been turned on the formation of melanin. The knowledge in regard to details of the formation of certain pigments in the plant kingdom led him to believe that the same process might be responsible for the production of melanin. Schonbein showed that potatoes, certain poisonous fungi, wheat gluten and red blood cells have the ability to activate the oxygen of the air, and as a result of the oxidation process, certain coloured products are formed. Yoshidas in 1883, determined the presence of a specific ferment, laccase, in the milky fluid of the lacquer tree, which caused the black colour when the sap of the tree was exposed to air. Then again, certain animal oxydases were known—tyrosin-oxydase or tyrosinase, which is widely present in the animal kingdom, activates tyrosin, phenol and certain near related peptone combinations. This ferment has been shown to be present in the intestines of mealworms, in the hæmolymph of butterfly wings, and at one time was thought to explain pigmentary processes of the skin. Further, polyphenolase, a ferment, is widely distributed in the animal and plant kingdom and activates polyphenols and animo-acid combinations. Many reagents may be used to determine the presence of this ferment, among others such substances as guaiacol, phenolphthalein and adrenalin. The reaction best suited for its determination is the Rohman-Spitzer[6] method. This depends upon the oxydation of paraphenylendiamine by the ferment and the union of the resulting product with a-napthol giving a blue reaction, the so-called indol-phenol blue reaction of Ehrlich. Phenolase is considered to be the cause of the colour changes which occur when apples, pears, potatoes and the juice of certain poisonous fungi are exposed to the air. This ferment has further been demonstrated in the crushed pulp of certain organs, and Winkler showed its presence in the granules of leucocytes of myelogenous origin, obtained in pus or blood.

Bloch first applied the indol-blue method to fresh skin sections, but the details of the reaction were not very clear, and permanent mounts were difficult because the reaction product was soluble in zylol and alcohol. He therefore devised a special method to obviate this difficulty. This was to put fresh skin sections in 2 — 3% solution

of agar in distilled water. After cooling, a block was cut out, which was frozen on the freezing microtome, and sections, fifteen microns in thickness, were cut at an acute angle. These were then overrun with a 1% a-napthol and paraphenylendiamine and the reaction observed microscopically. The results of the application of these reagents was as follows: There was no reaction in the epidermis, follicular epithelium or hairs. In the cutis the reaction was positive in the cytoplasm of the leucocytes. The active secreting part of the sweat glands gave the blue reaction, while the epithelium of the conducting tubules was only very slightly positive or negative. The reaction also occurred in the sweat of individuals, and this reaction was destroyed by boiling. In pathological skin sections the myelogenous elements gave a *very definitely positive reaction*, whereas those of lymphatic origin were quite negative.

Dyson[7] held the view that pigment in the epidermis resulted from nuclear activity, and was a lipochrome in origin. Bloch, as a result of his experimental work, held that pigment production in the skin is the result of the action of a specific ferment, and is intimately bound up with an oxydation process. He first treated freshly cut frozen sections with certain di-and tri-oxyphenols, pyrocatechin and other substances, with no very good results. He then used a substance dioxyphenylalanin—for short termed "dopa."—This substance is a combination product of pyrocatechin with a-amino proprionic acid and has the formula



There are two varieties of this substance, a natural variety occurring in the germinal centres of vicia faba, which is optically active, and a synthetically prepared variety. While the natural variety yielded the best results, the synthetically prepared one was found satisfactory. Frozen agar sections were placed in a watch glass containing .1 — .2% aqueous "dopa," the watch glass was guarded against evaporation and kept at room temperature for twenty-four hours or in a thermostat for eight or more hours, depending on the degree of reaction. The sections were then washed in distilled water, transferred to a slide, counterstained and mounted in Canada Balsam.

With a slightly positive reaction the reacting cells were filled with a smoky gray to grayish-black coloured material. Where a stronger reaction resulted, the cells were filled with brownish, black, round or angular granules which were deposited only in the cytoplasm of the cell, the nucleus remaining clear or taking the counter stain. In the epidermis, the basal layer cell, the epithelial germinal layer of the hair bulb and the cells of the hair matrix gave a positive reaction. Where excessive reaction occurred the whole Malphigian layer might take part. In these reacting cells the reaction was identical in disposition with the true melanin granules. The reaction took place in two varieties of cells: (1) the normal, cylindrically shaped cells of the epidermal basal layer, (2) dendritic shaped cells or cells of Langerhans, which have many or a few prolongations extending into the interspaces, scattered throughout the basal layer, and these latter cells, particularly the processes, were richly strewn with granules. Bloch found that these cells were much more numerous in sections treated with "dopa" than had been previously thought, as the prolongations of these cells do not stain with ordinary basic or acid dyes, although the cell body does take these stains. Reducing agents, such as silver nitrate, do stain these processes. Bloch found that these Langerhans cells were especially numerous in hyperpigmentary processes, and he considered them to be, morphologically, specialized epidermal cells. In the cutis certain elements alone react. The secreting cells of the sweat glands give the reaction and the sweat also to a moderate degree. Cells of myelogenous origin reacted strongly, whereas those of lymphatic origin were completely negative. In short, the reaction in the cutis paralleled the results obtained by the phenol indol blue method.

Now, whereas phenolase apparently activates a variety of substances the ferment in the epidermal cells on the other hand, is apparently specific, as no other substances even closely related in their chemical structure to "dopa", have been found to demonstrate its presence.

That this "dopa" reaction is essentially an oxidative process is evidenced (1) By the formation of a black sediment when "dopa" was exposed to the air in vitro, (2) Under anaerobic conditions the results were completely negative.

In normal healthy skin this reaction varied. It is noteworthy that "dopa" melanin was deposited at the sites of true melanin granules. Usually in hyperpigmented skin, the reaction

was marked, in fair skins, it was weakly positive. That this reaction is intimately bound up with pigment production is not to be doubted, for in spotted animals the non-pigmented or albinotic areas were completely negative, whereas the pigmented areas reacted strongly. Then again, in vitiligo, the leucodermatous areas were completely negative, the hyperpigmented zone reacted strongly, the reaction gradually fading in intensity towards the normal skin. This shows that vitiligo is the result of a local loss of pigment ferment, and is not apparently dependent on any general cause, this being quite in keeping with our clinical knowledge. It sometimes occurred that the reaction was weak in the presence of an obvious hyperpigmentation, but this might be explained by the view that hyperpigmentation is the end result of a fermentative energy that has become weak and inactive.

In pathological conditions the "dopa" reaction also supports the view that "dopa" ferment is intimately connected with pigment production. In Addison's disease, the reaction was not excessive; it was practically normal. Therefore it is urged by Bloch that the increased pigmentation in Addison's disease cannot be due to the presence of an increase of ferment, but rather must be the result of an increased amount of melanin mother substance in the blood or lymph stream. He considers that melanin and adrenalin probably arise from the same or closely allied substances, and that the inability of the suprarenal gland to produce adrenalin results in an increased amount of this precursor substance in the blood stream, that possibly this substance is of a toxic nature and that the hyperpigmentation in Addison's disease may therefore be explained as a protective process on the part of the body. But as Kyrle[8] points out, the sympathetic system must surely play a rôle in the control of pigment production, for there are cases, as for example, where pigmentation and other symptoms may develop very similar to those occurring in Addison's disease, which are due to disturbances of the proper function of the sympathetic ganglia by tumours of the retro-peritoneal region. Anatomically the suprarenal medulla may be quite intact. Lesions which affect the sympathetic must also react on the medulla of the suprarenal gland, it being a modified neurogenous tissue, and equally so, lesions of the medulla of the suprarenal gland must surely cause a disturbance of the sympathetic nervous control. Just how the sympathetic nervous system controls or is related to the pigment function of the skin cannot as yet be more fully explained.

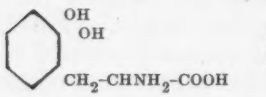
Radiant energy caused an increased activity of the ferment, and in local hyperpigmentary processes as in ephilides and chloasma there was a strong reaction to "dopa". Further, pigmented nævi reacted strongly to "dopa," as might be expected in view of their epiblastic origin.

The pigment bearing cells of the cutis did not give any reaction to "dopa" ferment. The pigment in these cells is as far as is known melanin, and these cells are usually found to lie under an area of the epidermis especially rich in pigment. These facts have lent support to the view that these cells have not the ability to originate pigment, but are able to transport excess of pigment from the epidermis, *i.e.*, that they are chromatophoric and not melanoblastic in function. It may be that the ultimate fate of melanin, which is not now known, may well be bound up with the presence of these cells.

The view that the formation of melanin is a function of epidermal tissue, and is not primarily of mesodermal origin is that most widely held today. There is, however, a notable exception to which reference must be made. In the new born there may be observed—rarely, it is true—practically exclusively in the sacral region, certain discrete pigmented macules. These are designated "Mongolian spots" and tend to gradually disappear as the child becomes older. They are due to certain cells of characteristic shape and disposition. These cells are elongated, fibrillary and often have pseudopodia-like processes, and are scattered irregularly throughout the deeper layers of the cutis. It has been shown that similar cells are to be found in the lower animals, particularly apes, where they have apparently a definite function, and therefore in the human, are to be considered as survivals of cells that, phylogenetically, are doomed to disappear. Such cells are only of importance under pathological conditions but it is not to be doubted that they produce their own pigment.

To sum up, the present status of our knowledge of the pigment production of the skin is that pigment is produced in the epidermis by means of a specific ferment in the cytoplasm of the cells of the germinal layer, and that this ferment activates a specific substance brought to the cells by the blood or lymph stream, and further that this process is essentially an oxidative process. Melanin is a highly complex, highly stable substance containing sulphur. It

may be that in its structure it is related to "dopa," but this is as yet undetermined. Adrenalin is a combination product of pyrocatechin and is closely related to "dopa," as the formulas show.



Bloch believes that "dopa" occurs in the intermediate metabolism of the body, but this substance has never been shown to occur as a normal metabolic product. On the other hand, the possibility of adrenalin, tyrosin, tryptophan and homogenistic acids being a mother substance of melanin would appear to be definitely negatived.

REFERENCES

(1) ERASMUS, WILSON, *Diseases of the Skin*, 1852. (2) KOLLIKER, Woher stammt das Pigment in der Oberhaut gebildet, *Anat. Anzeiger*, 1887. (3) EHRMANN, S., Zur Kenntnis von des Pigmentes bei den Amphibien, *Archiv. für Dermat. ü. Syphilis*, 1885-1886, 12/13, 509. (4) MEIROWSKY, Uber den Ursprung des Melanotischen Pigmentes der Haut und des Auges, Leipzig, 1908. (5) BLOCK, BR. UND RYHINER, P., Histachemische Studien in überlebenden Geürbes über fermentative Oxydation und Pigment Bildung, *Zeitschrift für die gesamte experimentelle Medizin*, 1917. (6) ROHMANN-SPITZER, Uber Oxydationswirkungen tierischer Gewebe, *Berichte der Deutsch. Ghem. Gesellschaft*, 1895, xxviii, 587. (7) DYSON, W., Cutaneous Pigmentation, *Brit. Jour. of Derm. & Syph.*, 1911, xxiii, 205. (8) KYRLE, J., *Histobiologie der Menschlichen Haut*, 1925.

RECENT ADVANCES IN HÆMATOLOGY

1. THE ORIGIN OF THE RED BLOOD CELL IN ADULT MARROW

EDWARD S. MILLS, B.Sc., M.D.

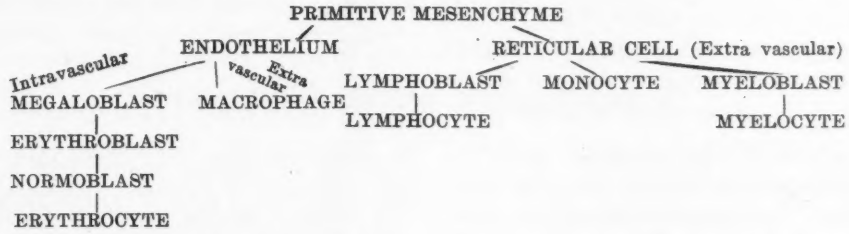
In adult mammalian and avian bone marrow the progenitor of the red blood cell arises from the endothelium of the bone marrow capillaries and the process of maturation takes place within these endothelial lined channels. Such is the conclusion of Dr. Florence Sabin and her coworkers, after a comprehensive study of the bone marrow of rabbits and pigeons.

Experimental Methods. In order to simplify the study, the marrow was first reduced to an extremely hypoplastic state. Observations during this stage and after the marrow had been permitted to regenerate itself, were made from material obtained by trephining the bone on the living animal or after sacrificing the animal. The experimental means adopted were simple and effective. In pigeons hypoplasia was obtained by starving. Regeneration was prompt after feeding. The marrow of rabbits was simplified by the depletion of its myeloid elements by several injections of inactivated typhoid bacilli given at forty-eight hour intervals. Hyperplasia was effected by bleeding the animals. The vascular system was studied after the injection of India ink.

Results. In hypoplastic marrows two kinds of intercommunicating capillaries are encountered; the sinuses or sinusoids containing the actively circulating blood, and intersinusoidal capillaries, which are potential cavities with their endothelial walls in apposition. At either end, the walls of these latter channels are directly continuous with the patent sinuses. From the endothelium of these collapsed or hæmatopoietic capillaries, the primitive progenitor of the erythrocyte, called by these authors the *megaloblast*, buds off by mitosis into the potential capillary lumen. This new cell by indirect division gives rise to erythroblasts and these in turn to many normoblasts. During the process of maturation the walls of the capillary blood vessels become pushed further apart. Finally the cells within them, having reached maturity, distend the capillary until it becomes patent to the ends, when a circulation is established with the communicating sinus, and the newly formed cells are washed into the blood stream. The intersinusoidal capillary thus becomes a patent sinusoid. While this process is going on, other sinusoids collapse to form new hæmatopoietic channels. Under normal conditions where the demand for new erythrocytes is not great, there is little activity on the part of the endothelium of the capillaries, because one megaloblast may be the progenitor of many erythrocytes. The daily demand is probably met by proliferation of the erythroblasts inside the hæmatopoietic capillaries. On the other hand during extreme hyperplasia not only the endothelium of these capillaries becomes active, but in addition, the endothelial cells of the patent sinuses are called into play. This explains why immature cells during this state reach the general circulation, while under ordinary circumstances only the ripe cells are found there.

The erythropoietic and myelogenic areas in the marrow are separate and distinct. The former appear relatively avascular owing to a predominance of the collapsed capillaries, while the latter show more numerous patent sinuses. The granulocytes arise from an extravascular primitive reticular cell; they mature in the marrow

spaces, and enter the sinusoids by their amœboid activity. The genetic tree would thus be:



This view of erythropoiesis in adult mammalian bone marrow is quite revolutionary. That capillaries can at one time be patent, and at another only potentially so, is not new. Krogh (1919) definitely showed that this does take place in muscle and other tissues. That it should hold true for the bone marrow is consequently not surprising.

The origin of the progenitor of red blood cells from the endothelium of capillaries in avian marrow was claimed by Van der Stricht (1892), but he found no counterpart in mammals. Maximow, Bunting, and many other workers have described the extravascular origin of erythrocytes from a primitive mesenchymal cell, and their subsequent maturation in the spaces of the marrow. Whether delivered into the blood stream by growth-pressure as Maximow believes, or by some other mechanical means, this site of origin and proliferation has been generally accepted. But as Sabin points out these investigations failed to discover that these erythropoietic islands were endothelial-lined and that the point of delivery was the Y-shaped opening of the hæmatopoietic capillary into the patent sinus. Sections of rabbit's marrow depleted by another experimental method have been recently studied by the writer and thus far are in keeping with Sabin's view.

The following is a rough diagrammatic sketch to illustrate the origin of a group of erythrocytes from a megaloblast arising from the endothelium of an intersinusoidal capillary.

If this recent explanation is correct it may help to clarify some clinical questions: the delivery of numerous immature forms of red blood cells during conditions of extreme hyperplasia, as in repeated hæmorrhage; the effect of circulating toxins upon erythropoietic activity, in tuberculosis and certain types of taeniasis; and the anæmia of metallic poisons such as lead and radioactive substances.

REFERENCES

(1) CUNNINGHAM, R. S., SABIN, F. R., AND DOAN, C. A., *Contrib. to Embryol. No.* 84, Carnegie Inst. of Wash., 1925, xvi, 125-169, *ibid.*, xvi, 227-276. (2) MAXIMOW, A., *Arch. f. Mikr. Anat.*, 1910, 76, 1-113. (3) KROGH, A., *Jour. Physiol.*, 1919, 52, 409-415. (4) BUNTING, C. H., *Jour. Exp. Med.*, 1906, 8, 625-646. (5) VAN DER STRICHT, *Arch. de Biol.*, 1892, 12, 199-344.

Total and Subtotal Restoration of the Nose.—To be acceptable, a surgically reconstructed nose, says Vilray P. Blair, St. Louis, must be covered with smooth skin, have a normal contour, have an epithelial lining, and pro vide an adequate airway. Though not always necessary, a rigid support of bone or cartilage will usually add to the quality of the result. It is very desirable that the size and form of the new nose be in harmony with the particular face. Nasal reconstruction amounts to sculpturing with the live tissues for material, and this must be done in conformity with good surgical usage, combined with mechanical accuracy and some artistic feeling. Blair describes his method of procedure.—*Jour. Am. Med. Ass.*, Dec. 19, 1925.

Editorial

A DISCUSSION ON HYPERPIESIS

FEW conditions in medicine have engaged the attention of the profession more than disorders of blood pressure. These constitute a problem whose solution seems at times to be imminent, but that perhaps is because we from time to time more clearly define some of its many factors. When the problem as a whole is taken up, as has lately been done,* there is disclosed in the minds even of our leading teachers, a degree of uncertainty and lack of agreement which indefinitely postpones a clear enunciation of its cause, effect, and treatment.

The definition of our terms in this matter is as important as it ever must be. When the layman informs us that he has "blood pressure," we mentally or audibly qualify the description, but it is very little better for the physician to state that his patient is suffering from "high blood pressure," which is a term commonly enough employed. A high blood pressure may be transient or it may be persistent; it may give symptoms or it may not; it may be consistent with comfort and prolonged life, or it may be distressing and ominous. Certainly our terms should take account of these variations in theme, and there is much to be said for the use of such terms as "hyperpiesis" and "hyperpiesia." By the first of these is denoted persistent hypertension, not necessarily permanent, and by the second a condition of disease (first clearly identified by Sir Clifford Allbutt) possessing well-marked characteristics, and running a certain clinical course.

It is not nearly so simple a matter to establish the causes of hypertension. We know that the chief factors concerned are the heart and the peripheral resistance. It is when we ask about the influences which modify these factors that our uncertainty begins. Sir E. H. Starling holds that the cause of hyperpiesia must be first sought in the vasomotor centre. He thinks that it is an open question whether alterations in the kidney are ever the prime causes of the changes associated with hyperpiesia. It is true that "the changes in the circulation through the brain and the vasomotor centre may be primarily local, or may be secondary to changes in other parts of the body, such as the kidney. But no pathology will be adequate which does not take into account the sensitiveness of the vasomotor centre to the changes in the circulation through it, which determine the height at which the arterial pressure is set. The part played by each and any of the factors enumerated can only be decided by the continued labours of the morbid anatomist, in association with experiment in the laboratory and the wards."

For the ultimate solution of the problem we must depend on the continued collection and correlation of facts contributed by all available sources, by the insurance companies, by the physiologists, and, perhaps above all, by the general practitioner. The guidance of statistics, alone, for example, is not to be unhesitatingly accepted. It is obvious that the statistics of insurance companies are based on work which varies very considerably in accuracy; for the estimation of the blood pressure is a proceeding which may give different results with different observers. And there is also the difficulty of applying statistical conclusions to the individual case. To the beginner in medical practice there is perhaps no type of case more likely to occur amongst his first experiences than the hyperpietic, and with an equal likelihood, none regarding which his prognos-

* *Brit. Med. Jour.*, Dec. 19, 1925. Discussion on Hyperpiesia at the British Medical Association, Annual Meeting, 1925.

tications of an early decease will be more utterly confounded.

It was significant that in this well devised discussion, the matter of treatment should have occupied a comparatively inconspicuous place. This is as it should be, in a condition whose causation is so variable and so incompletely understood. Electrotherapy as a means of reducing high blood pressure, was given some prominence: it was stated that this method was not to be regarded as a cure, but still, in patients presenting a certain group of symptoms associated with hyperpiesis, electricity, properly administered could be relied on to do a great deal.

More important, possibly, may be the part played by preventive medicine, especially in the hyperpiesis of the young, a point particularly brought out by Lord Dawson of Penn. He showed that there was a small but appreciable number of such cases; in some of them it might be merely a temporary peculiarity of function, but in others it might be the precursor of a pathological condition. He suggested that such potential hyperpietics could receive educational treatment, and have a reasonable amount of direction in their careers.

H. E. MacDermot

INTRACARDIAC SURGERY

THE question of surgical interference in certain cardiac lesions, notably in mitral stenosis, is one that is occupying the attention of many investigators. The work of H. S. Souttar, C.B.E., of London, as published in a recent issue of the *British Medical Journal* is worthy of more than passing notice. He reports success in a case of mitral stenosis operated on by the auricular route. The operation may be briefly summarized as follows: under intratracheal ether anæsthesia he made a "trap door" opening in the chest wall, and a vertical incision of the pericardium along its left anterior border. The left auricle was pulled forward and the finger introduced through an opening in its tip. It was intended to divide the valve by a guarded hernia bistoury passed along the finger, but this was not done as the passage of the finger apparently gave a sufficient opening. The opening in the auricular appendage was then sutured, and simple closure of the pericardium and chest wall completed the operation. The postoperative course was uneventful and the patient was apparently greatly benefited by the procedure.

This appears to be the first successful case in which the approach was made by opening the auricle. Cutler, Levine and Beck have reported one case of mitral stenosis which was successfully operated on by the ventricular route, using their specially devised valvulotome. Mention should also be made of the experimental work of Allen and Graham in connection with direct examination of the valves by means of their cardioscope, pioneer work along the same lines having been attempted by Rhea and Walker in 1913.

As recently as 1883 Billroth declared that "no surgeon who wished to preserve the respect of his colleagues would ever attempt to suture a wound of the heart." And even as late as 1902, when Sir Lauder Brunton suggested that "the good results that have been obtained by surgical treatment of wounds of the heart emboldens one to hope that before very long similar good results may be obtained in cases of mitral stenosis," he was greeted with a storm of criticism.

When such pessimistic views are recalled, it is not, we believe, too much to hope that the work of Souttar, together with that of the American investigators, may prove a very important milestone on the road to successful cardiac surgery.

L. H. McKim

XUM

ON RIGHT AND LEFT HANDEDNESS IN MODERN AND IN PRIMITIVE MAN*

THE statement made by Professor Elliott Smith of University College, London, in a recent communication (*British Medical Journal*, November 7, 1925) that the fossilized skull recently found in a London excavation was that of a left handed woman, gave rise to widespread incredulity. To allay it Professor Elliott Smith called attention to the very definite evidence provided by this fossilized skull of a reversal of the normal asymmetry of the human brain-case met with in right handed individuals, in whom the lunate sulcus on the occipital bone on the left side is deeper than on the right. During the winter of 1907-8 in association with Professor Wood Jones, Elliott Smith carefully investigated the significance of alterations of symmetry in the skull and arm bones due to increased use of the right hand and arm. Professor Elliott Smith states that he found that the asymmetrical depressions upon the occipital bone were almost invariably reversed in those cases where the left humerus was longer and more robust than the right. Since the publication of these investigations the question has been raised by several critics as to the validity of these inferences. Since 1845, when Arnold raised this problem for consideration an extensive literature on the subject has accumulated. Attention has been called to the fact that at the time of birth the length of the bones in the two arms is identical. In other words the asymmetry manifests itself in the course of post-embryonic life. It is stated that it occasionally happens that a person whose occupation compels the exercise of the left arm more than the right, notwithstanding a congenital tendency to right-handedness, may have longer and stronger bones in the left arm. This state of affairs, however, is altogether exceptional, and should not be allowed to discredit the clear inference, that the length of the arm bone in the great majority of cases is a safe indication of right or left handedness.

During the course of his work in Nubia in 1907, Professor Wood Jones attempted to correlate observations on the skeletons of the ancient habitants of Nubia with conditions found in living Egyptians. He discovered that in right handed people the left clavicle was longer and thinner than the right. This condition of the clavicle he found invariably associated with a longer and stronger right humerus. When the clavicular condition was reversed the left humerus proved to be the bigger bone. The asymmetry of the brain that is associated with this asymmetry of the limbs is not restricted to modern man. It is characteristic of the human family as a whole, and appears as one of the distinctively human traits revealed in most of the known fossil material. In the cast of the brain case of the LaChapelle man described by Professor Boule and Anthony, a larger lunate sulcus is shown upon the left hemisphere, and the right humerus is longer than the left. In the Neanderthal group as a whole, however, the asymmetry of the posterior ends of the brain case is less noticeable than it is in the more recent groups. In the cast of the brain case of the Rhodesian man the lunate sulci are nearly as symmetrical as they are in the anthropoid apes. The same type of asymmetry is found in the cast of the most primitive human brain case available for examination—that of *Pithecanthropus*. This asymmetry of the occipital end of the brain affords corroboration of the view that *Pithecanthropus* was definitely a member of the human family. In other words, the asymmetry of the brain is as old as the human family itself, and is a fundamental character distinguishing man from all other members of the order Primates.

Attempts have been made in the past to determine whether extinct members of the human family were right- or left-handed by a study of the implements

*Abstracted from the *British Medical Journal*, December 12, 1925.

made by these people. But so far as I am aware, no one has attempted to solve this problem directly by a consideration of the fossil remains of man himself. The evidence of asymmetry of the brain to which I have called attention throws a light on this problem that is much more reliable than any inference which can be made from man's handiwork.

The question naturally suggests itself whether there is any trace of asymmetry in the anthropoid apes. Although the two cerebral hemispheres in the anthropoid apes are approximately symmetrical, and do not reveal the obtrusive asymmetry found in most human beings, the superior longitudinal sinus does not always split into branches of equal size as so frequently happens in the lower apes. Though there is no obvious asymmetry of the brain, there seems to be in the (apparently ambidextrous) anthropoid apes an instability that affects the symmetry of the limbs, although neither the right nor the left is so definitely selected as in the case of the vast majority of human beings.

Taking into consideration the fact that the cortical territory concerned in the causation of this lunate asymmetrical sulcus is the visual area, it is of some interest to note that B. S. Parson, in his book *Left-handedness* (1924), came to the conclusion that the ocular dominance—that is, the use of one eye for fixation—determines both cerebral dominance and the "handedness" of the individual.

The apparent asymmetry of the visual cortex, (that of the left side associated with the right field of vision appearing to be considerably bigger than the right,) at one time deceived me into believing that the *area striata* was actually bigger on the left than on the right side. But careful measurement of this region in the two hemispheres ultimately convinced me that appearances were illusory, the apparent difference being due, not to the contrast between the visual areas of the two hemispheres, but to the mode of packing. The larger parietal area on the right hemisphere usually pushes back the *area striata* further than happens on the left.†

It must be remembered in such investigations that congenital tendencies may in many cases be overcome to a considerable extent by training; so that it is possible to get a brain showing the asymmetry distinctive of left-handedness with limbs which show the conditions usually associated with right-handedness.

†See *Anat. Anzeiger*, 1907, Bd. xxx, p. 574.

NOVASUROL

IN a recent number of the *Journal of the American Medical Association* Dr. Rowntree and his associates report the success which has followed their employment of *novasurol*, a double salt of sodium mercurichlor-phenyl oxycetate with diethyl barbituric acid. (barbitone), which contains nearly thirty-four per cent of mercury. It was introduced at first as a remedy for syphilis; its most important use however would appear to be as a diuretic. For some time past the milder compounds of mercury have been recommended as diuretics in cases of ascites due more to cardiac than to nephritic failure. Novasurol has an advantage over metallic mercury in that it is freely soluble in water, and may be administered by subcutaneous, intramuscular or intravenous injection. The drug first proved efficacious in some cases of cardiac dropsy, succeeding in cases in which digitalis and the purin derivatives failed. As the result of his experience with it Rowntree considers that it will unquestionably play an important part in the future in the treatment not only of cardiac, but also of nephritic œdema. German clinicians have shown that novasurol produces a relative and absolute increase in the excretion of the chlorides in the urine. Keith and Whelan also found that under the influence of this drug there was a relative and absolute increase in the out-

XUM

put of sodium in the urine. Previous experiments appeared to indicate that novasurol in cases of ascites and œdema arising from portal cirrhosis gave unsatisfactory results, and that sometimes headache and vomiting followed its use. Rowntree and Barrier however have reported excellent results in several cases of cirrhosis of the liver and of Banti's disease.

The clinical material which served as the basis of Rowntree's report comprised twenty cases in all, and included ten cases of portal cirrhosis, two of portal cirrhosis and cardiac decompensation, two of syphilitic cirrhosis, two of Banti's disease, two of neoplastic disease with metastases in the liver, one of polyserositis, and one of polycythemia with chronic endocarditis and myocardial insufficiency. In all of these cases the ascites was marked, and in most of them constituted an outstanding clinical feature. Cardiac and renal insufficiency was demonstrated in all but three, but in these three such undoubtedly constituted a factor in the causation of the œdema. The medical treatment of these cases consisted in the restriction of water and salt, the control of diet, and the use of diuretic drugs. Novasurol used alone in some of the cases gave striking results. When combined with the administration of ammonium chloride by the mouth and at the same time with a controlled diet of a fixed low water and low salt content, the best results were obtained. Novasurol was given in doses up to 2 c.c. intramuscularly or intravenously at intervals of from three days to a week. Its tolerance was first determined by the administration intramuscularly of from 0.5 to 0.75 c.c. Ammonium chloride was administered in divided doses up to ten grammes daily and was found to be best given in crystalline form in capsules of 0.75 or 1.50 grammes. In nineteen of the twenty cases diuresis resulted from this treatment. In eight of the cases the urinary excretion of chlorine and sodium was relatively and absolutely increased; that of potassium and calcium was usually increased. The total output of urea, ammonia, and total nitrogen was also slightly increased.

The diuresis arising from the administration of novasurol combined with the ammonium chloride appeared to be due chiefly to the increased chlorine in the tissues, rather than to any decrease in the alkali reserve. Novasurol undoubtedly produces an increased excretion of sodium and chlorine in the urine. Whether the seat of this action is in the kidney only, in the tissues generally, or in both, has yet to be determined and further experimental work is required. Novasurol in the ten cases of cirrhosis of the liver in this series caused diuresis in all. Repeated periods of diuresis have brought about the disappearance of the ascites and of the œdema in seven cases, and to a large extent also the evidences of the collateral circulation. The patients have improved remarkably in health and strength, and the result must be regarded as excellent. In both cases of Banti's disease the ascites was extreme, and in both there had been many previous tappings. They both responded to novasurol with results little short of marvellous. In ascites associated with syphilis of the liver, novasurol was remarkably efficacious, and in one case reported in which myocardial degeneration, cirrhosis of the liver, and renal insufficiency were all definitely present, the fact that novasurol was so efficacious would indicate that not one of these conditions is a contra-indication to its use.

The results obtained under the use of novasurol in this series of cases, Rowntree considers as unquestionably better than the results from any other method of treatment. Restriction of water is indicated and is of undoubted value. The question may be raised of the advisability of forcing water intake in cases of cirrhosis prior to the appearance of ascites, a practice advocated in some of our leading textbooks of medicine of today.

With the clearing up of the ascites in portal cirrhosis the general health and strength are markedly improved; the abdominal collateral channels disappear almost entirely, and the patients according to these reporters passed from a condition of serious illness to one closely approaching normal. In view however

of previous experience reported in the literature in which both lack of effect and actual harm have been reported, it is obvious care must be exercised in following the course of events as treatment is being given.

REHABILITATION OF THE TUBERCULOUS

REHABILITATION of those suffering from tuberculosis is a project which has been before anti-tuberculosis workers ever since Sir Robert Philip of Edinburgh outlined many years ago his famous community organization centered around a well equipped, efficiently manned (as to medical personnel) dispensary. The most successful effort to meet this particular want in the programme has been devised and operated near Cambridge, England, by Varrier-Jones and his deceased senior, Sims Woodhead, at Papworth. They claim, that by the forms of employment devised, they are able to make the colony self-supporting. If this is true even by utilizing any grants available by law, and by not charging interest or sinking fund on capital account, it is a wonderful success. It provides accommodation for the family of an arrested tuberculous case. It has bed accommodation for those who slip back under strict medical and nursing supervision and secures for those fit employment suited to the individual, and his home conditions. There have been other much smaller and less complete efforts in England but also less successful. The National Tuberculosis Association of the United States, inaugurated a colony undertaking last summer, which may by this time be accepting cases. The Reco Shop, started in New York City, to train men in suitable employments, has been closed. The Altro Shop, operated by the Hebrew Charities for arrested tuberculous cases is still working, but it does not provide homes, or remove the cases into open country surroundings. The Standard Oil Company of California, have a successful scheme for their employees at Colfax. The New York State Telephone Company treat and rehabilitate their cases of tuberculosis, and both these corporations state it pays them. The arrested tuberculous case must have support for his family while he gradually acquires the ability to work long enough hours to support them, at a type of work medically suitable, and under congenial surroundings with fellow employees who will not shun him, or otherwise unnecessarily embarrass his willing and anxious efforts. A conscientious arrested case of tuberculosis from a Sanatorium is not a menace to fellow workers.

P. E. WODEHOUSE

HÆMORRHAGE IN PULMONARY TUBERCULOSIS

IN an interesting article by Dr. F. M. Pottinger of California (*Amer. Journal of the Medical Sciences*, September, 1925), the etiology of hæmorrhage in pulmonary tuberculosis is discussed. It was formerly generally accepted that blood in the sputum pointed to destruction of a portion of the wall of a pulmonary vessel. Careful investigation, however, shows that blood coming from the lungs does not always indicate the same underlying condition. Ulceration of the wall of a vessel, and rupture of an aneurysmal dilatation of a vessel in the unprotected wall of a cavity may occur now and then and cause severe and even fatal hæmorrhage. Injury to the walls of tiny capillaries is also a frequent cause of bleeding, but the great majority of pulmonary hæmorrhages do not appear to

be due to these causes. Hæmorrhages occur and recur under certain conditions; the most common of which are changes in the weather, the menstrual cycle, and the presence of some acute infection. They are usually small in amount; they frequently persist over several days, and are apt to recur under similar conditions. The tendency for tuberculous patients to spit blood during the menstrual period has long been recognised. This tendency has been referred to a vicarious menstruation. This explanation is now known to be incorrect. Recent advances in biophysics and studies on the physiology of the circulatory system suggest another explanation for some types of bleeding. Krogh has discussed the effect of capillary poisons causing such a permeability of the vessel walls as to permit the passage through it of the constituents of the blood into the tissues. Among substances classed as capillary poisons he mentions histamin, sepsin, and certain salts of gold and arsenic. Some types of acute respiratory infection, which have been common since the influenza epidemic of 1918, have not only been the cause of blood spitting in some tuberculous patients but also in others in whom Dr. Pottinger could find no evidence of tuberculous disease. Certain toxins from the tubercle bacilli and from other micro-organisms causing acute infections may act as direct capillary poisons. An increased permeability of the vessel walls may also arise as a result of an increased activity in the local cells.

It is perhaps more difficult to explain the manner in which hæmoptysis accompanying changes in the weather is produced. The effects of temperature changes upon the superficial capillaries in the body and the influence of the varying content in light rays and in electric units under conditions of storm and pleasant weather, and the sometimes rapid alterations in the barometric pressure must be regarded as potent factors in disturbing physiological action and call for much adjustment. Hæmorrhages which depend on weather changes are most apt to occur at the time of day when atmospheric pressure is low. Pottinger sums up his argument as follows: Acute infections of the lung are apt to produce their greatest effect at the point where the tissues are now, or have been injured, by tuberculous disease. This causes increased activity and permeability of tissue including blood vessels, resulting in conditions which permit the passage of blood through the vessel wall. The menstrual enzyme in some manner causes increased activity in local tuberculous processes, which is occasionally accompanied by increased permeability and hæmorrhage. Certain weather changes also, while affecting all the tissues of the body, affect particularly those which have been injured as the result of active disease and may cause the blood to pass through the capillaries.

COMPARISON OF THE TWO HYOSCINES

FROM the pharmacological laboratory of the University of Edinburgh we note an interesting paper by Chassar Moir on the physiological actions of the hyoscines (*British Medical Journal*, September 19, 1925). Hyoscine exists in two forms, identical in their reaction to ordinary chemical reagents, but differing in the direction in which they rotate the plane of polarized light, and are therefore known as optical isomers. The lævo-rotatory alkaloid is the one that occurs in nature and the one that should be used in therapeutics. The dextro-rotatory may be formed artificially. A mixture in equal parts of the two isomers is known as racemic hyoscine, and is occasionally met with.

While these forms cannot be differentiated by ordinary reagents, they can be distinguished by substances which also rotate the plane of polarized light and are optically active. There are a number of other drugs in which similar isomeric conditions exist and which manifest a marked difference in their effects on

living tissues. For example, the natural lævo-rotatory hyoscyamine and adrenalin are some fifteen to twenty times as powerful as the dextro-rotatory hyoscyamine and adrenalin. It appeared, therefore, to be of importance to determine whether a similar difference in their physiological action existed in the two hyoscines. As regards their action on the peripheral nerves, the racemic form containing equal amounts of dextro- and lævo-rotatory hyoscine was found to be only half as powerful as the lævo-rotatory, while the lævo-rotatory proved to be from sixteen to eighteen times the strength of the dextro-rotatory one. In experiments on animals to determine the narcotic action no satisfactory results were obtained as animals apparently do not react to small doses. On a request from Professor Cushny an effort was made to ascertain the effect of these two hyoscines on the higher mental processes; first, as regards their efficacy in producing twilight sleep, and secondly in controlling restlessness in cases of insanity.

In the Edinburgh Royal Maternity Hospital, observations were carried out carefully on twenty-seven cases. As far as possible the two varieties were given in alternate cases. The majority of the cases were primipara. For each case a special chart was kept in which hourly progress was recorded. The dextro-hyoscine cases numbered twelve. In no case was any impairment of the intelligence observed, and in none did there appear to be any alteration in the sensation of pain; sleep was not induced. Increase of the standard dosage made no change in the results obtained. The lævo-hyoscine cases numbered fifteen. In ten there was complete amnesia, the patients remembering nothing after the first or second injection. They were completely oblivious to the passage of time, and although they had been a day or more in the hospital many would declare they had only just arrived. Intelligence was markedly disordered and often most absurd answers were given to questions. After the second injection the patient lapsed into the curious dazed state of twilight sleep. The depressant action on the newborn's respiratory centre was also investigated, and it was noted that among the lævo-hyoscine cases it was not unusual for several minutes to elapse before respiration was satisfactorily established. After the administration of dextro-hyoscine patients only became rather restless and this may have been due to natural fatigue. From these clinical observations it would appear that only lævo-hyoscine is active in producing amnesia, in depressing the intelligence, and in controlling restlessness. The dextro-rotatory form in doses of 1/100-th grain or more is apparently inert in these directions, and can only be regarded as a useless ingredient when present in any prescription.

EVIL OF SMOKE POLLUTION IN LARGE CITIES

THE attention that has been given to heliotherapy and other forms of light treatment has served to produce a greater realization of the evils of smoke pollution of the atmosphere. At the annual conference of the British Commercial Gas Association, Dr. R. V. Clark, health officer of Manchester, said that the abolition of smoke was a thoroughly feasible proposition and would do more for the improvement of health in our industrial centres than any other action. The sunlight treatment for the cure and prevention of rickets and tuberculous disease had given as good results in England as those obtained in Switzerland. It was of the greatest importance to adopt all procedures that would enable the solar radiations to reach our bodies in the natural way. Ultra violet rays will not pass through clothing, and the modern fashions whereby women exposed their arms and necks were to be commended. It was the continued lack of sunlight due to the pollution of the air by smoke which made men old at fifty.

Manchester had only seventy per cent of the sunlight enjoyed in villages five miles away. Professor Cobb of Leeds University said that the greatest material difference between civilized and primitive men was the extent to which the former had come to make use of the effects obtained by burning fuel. Apart from the waste of chemical wealth involved in burning coal with the production of a large amount of smoke, raw coal was a poor fuel. In an ordinary coal fire, only from twenty to twenty-five per cent of the carbon was made available for warming the room. Much damage was also done to trees and plants not only by irritating gases but by lack of light. More extensive use of coke and gas would reduce the amount of smoke and diminish the damage to vegetation.

HOSPITAL DIETARIES

IN a recent number of the *Journal of the American Medical Association* a short editorial appears on "The Hospital Dietary as an Example of Right Living," in which the Editor emphasizes the importance of a correct mode of life and a moderate diet, as a means of securing man's bodily welfare, and the necessity of this becoming a theme, the importance of which all medically trained persons should emphasize. They must warn their patients against the potential menace of a rich, unduly stimulating dietary, and exhort them to choose the paths of hygienic rectitude. An equally urgent duty confronts the modern hospital which has to provide for many on its staff and for not a few patients whose ailments or injuries do not interfere directly with either digestion or assimilation. From this standpoint Dr. Reginald Fitz of the Peter Bent Brigham Hospital in Boston, writing for the newly established journal of the American Dietetic Association, remarked that in constructing normal diets, hospital dietitians must recognise common dietetic errors and habits, and must remember that hospitals are becoming more and more centres of public health instruction for both the well and the sick. An almost universal dietetic error is the abuse of rich, concentrated foods offered in large quantities and irregularly. Hospitals should set an example to their patients and personnel by serving model normal diets which are inexpensive, easily prepared, palatable and well cooked; which contain sufficient calories and proteins to cover ordinary metabolic and digestive needs, and which are so balanced in their food components as to be sound in theory and of practical usefulness. Lack of regular physical exercise in the open with a tendency to physical indolence is with many on the increase, and calls either for limitation in the intake of food, or increase in the amount of daily exercise. If we would continue our appetites we must not abandon regular exercise simply because mechanical contrivances put it in our power to avoid much physical exertion.

Editorial Comments

THE WILLIAM GIBSON RESEARCH SCHOLARSHIP FOR MEDICAL WOMEN

Miss Maud Margaret Gibson has placed in the hands of the Royal Society of Medicine a sum of money sufficient to provide a Scholarship of the yearly value of £292, in memory of her father, the late Mr. William Gibson, of Melbourne, Australia. The Scholarship is awarded from time to time by the Society to qualified medical women who are subjects of the British Empire; and is tenable for a period of two years, but may in special circumstances be extended to a third year. The next award will be made in June, 1926.

In choosing a scholar, the Society will be guided in its choice "either by research work already done by her, or by research work which she contemplates. The scholar shall be free to travel at her own will for the purpose of the research she has undertaken."

There is no competitive examination, nor need a thesis or other work for publication or otherwise, be submitted. The Society has power at any time to terminate the grant if it has reason to be dissatisfied with the work or conduct of the scholar.

Applications should be accompanied by a statement of professional training, degrees or diplomas, and of appointments, together with a schedule of the proposed research. Applications must be accompanied by testimonials, one as to academical or professional status, and one as to general character. Envelopes containing applications, etc., should be marked on top left-hand corner "William Gibson Research Scholarship" and should be addressed to Mr. G. R. Edwards, Secretary, Royal Society of Medicine, 1, Wimpole Street, London, W.1., and be received not later than Tuesday, June 1st, 1926.

Dr. Samuel Johnston, chief of the Department of Anæsthetics in the Toronto General Hospital and Lecturer in Anæsthesia in the Faculty of Medicine in the University of Toronto, has recently been appointed President of the Section of Anæsthesia in the British Medical Association.

The Section of Anæsthetics has recently been organized in the British Medical Association and Dr. Johnston will be the first President to occupy the Chair when the Association meets during the last week of July, 1926, in Nottingham.

We are pleased to report that we have been promised for an early number of our *Journal* the address given recently by Emeritus Professor Alexander McPhedran, M.D., LL.D., on Cardiac Disease before the Medical Societies of Fort William and Port Arthur.

Association Notes

THE VICTORIA MEETING

A Special Train

No doubt a great many of our members, including those in Eastern Canada who have not previously treated themselves to a trip through Canada's wonderful Rocky Mountains to the delightful Pacific Coast, will be planning to attend our annual meeting in Victoria, during the week of June 21, 1926. It has been suggested by several members that an attempt be made to organize a special train from the East. Enquiries have elicited the information that to operate a special train requires between 100 and 125 passengers. It would be possible to make practically any arrangements the party would desire, that is, any route preferred, any number of stop-overs, and the return journey in a similar manner; or a special train could be secured just for the trip out, allowing members to make their own arrangements as to the return journey.

Canadian National Railways

The following suggestions and information have been received from the Canadian National Railways:—

Itinerary for Going Journey

Lv. Toronto	10.00 a.m.	Sat.	June	12	C.N.Rys.
Ar. Sarnia	3.45 p.m.	"	"	"	" "
Lv. Sarnia	4.00 p.m.	"	"	"	Nor. Nav. Co.
Ar. Port Arthur	5.30 a.m.	Mon.	"	14	Nor. Nav. Co.
Lv. " "	6.30 a.m.	"	"	"	C.N.Rys.
Ar. Winnipeg	9.15 p.m.	"	"	"	" "
Lv. "	10.00 p.m.	"	"	"	" "
Ar. Saskatoon	12.15 N'n	Tue.	"	15	" "
Lv. Saskatoon	6.30 p.m.	"	"	"	" "
Ar. Edmonton	8.40 a.m.	Wed.	"	16	" "
Lv. "	12.30 N'n	"	"	"	" "
Ar. Jasper Park	10.35 p.m.	"	"	"	" "
Lv. " "	8.40 a.m.	Fri.	"	18	" "
Ar. Prince Rupert	4.30 p.m.	Sat.	"	19	" "
Lv. " "	6.00 p.m.	"	"	"	" " (Steamer)
Ar. Vancouver	9.00 a.m.	Mon.	"	21	" " (Steamer)
Lv. "	10.30 a.m.	"	"	"	C.P.R. Steamer
Ar. Victoria	2.30 p.m.	"	"	"	" "

This itinerary is constructed upon basis of regular train service that at present it is expected will be in effect during June next. Should the Association be successful in securing one hundred members to take this trip, we would operate a special train from Port Arthur to Prince Rupert, making any stop-over that might be desired en route.

The above itinerary does, however, give you a day in Winnipeg, an afternoon in Saskatoon, a morning in Edmonton and a full day and two nights at Jasper Park.

The return trip may be made *via* Canadian National direct rail line to Port Arthur thence steamer to Sarnia and rail to Toronto or *via* Portland, Oregon and United States lines *via* Chicago. Should it be the desire of the party to return together, we would arrange such return movement *via* any route selected.

RAIL FARES

A. Going *via* the above itinerary, returning Canadian Lines direct to Port Arthur thence steamer..... $149.35

B. Going *via* the above itinerary, returning *via* Canadian rail lines direct to Toronto..... $139.35

C. Going *via* the above itinerary, returning *via* Portland, Ore. and United States Lines *via* Chicago... $139.35

D. Going *via* the above itinerary, returning *via* San Francisco and Los Angeles..... $161.85

(Tickets routed *via* Great Lakes include meal and berth while upon steamer).

We would also arrange to furnish an all expense tour rate for a route selected by the Association.

Rates at Jasper Park Lodge—Per Day

Without Bath	$6.50 to $8.00 Single
" "	$12.50 to $15.50 Double
With Bath	$8.50 to $9.00 Single
" "	$16.50 to $17.50 Double

(Meals and rooms included in these prices)

Should you, however, prefer using Sleeping Cars during stopover at Jasper, this could be arranged and the additional charge for this service is mentioned below under the heading of "Sleeping Car Fares."

Sleeping and Parlor Car Fares

Between Toronto and Sarnia

Parlor Car Seat - $1.05

Between Port Arthur and Prince Rupert

Lower Berth $20.65 Upper Berth $16.50
Drawing Rm. $72.60 Compartment $57.75

Note: If Sleeping Cars would be used at Jasper Park instead of hotel, the following additions would be made to these rates:

Lower Berth $5.00 Upper Berth $4.00
Drawing Rm. $18.00 Compartment $14.00

For Return Route

Between Vancouver and Port Arthur

Lower Berth $20.65 Upper Berth $16.50
Drawing Rm. $72.60 Compartment $57.75

Between Vancouver and Toronto

Lower Berth $26.45 Upper Berth $21.20
Drawing Rm. $93.50 Compartment $74.25

Between Seattle and San Francisco

Lower Berth $10.13 Upper Berth $8.10
Drawing Rm. $36.00 Compartment $28.50

Between Seattle and Los Angeles

Lower Berth $14.25 Upper Berth $11.40
Drawing Rm. $51.00 Compartment $40.50

Between Los Angeles or San Francisco and Chicago

Lower Berth $23.63 Upper Berth $18.90
Drawing Rm. $84.00 Compartment $66.75

Between Chicago and Toronto

Lower Berth $5.63 Upper Berth $4.50
Drawing Rm. $15 75 Compartment $21.00

There is also another feature that should appeal to the medical profession and that is a trip from Vancouver to Alaska, return fare from Vancouver being $90.00.

Equipment

The equipment we would furnish for the accommodation of members of your Association would be of the latest all steel type and would consist of 12 Section Drawing Room Sleepers and Compartment Observation cars.

In order to insure the success of an organized movement for your Association, we feel that a decision in respect to the routing should be made as early as possible so that proper publicity might be given and also preparations consummated to insure your members of a comfortable and enjoyable trip.

Canadian Pacific Railway Company

The following information has been received from the Canadian Pacific Railway Company. On the basis of 125 passengers a special train will be operated at an all-inclusive rate of $325 per passenger, covering the details as herewith appended:—

Lv. Toronto 11.45 p.m. Sun., June 13

Ar. French River 8.00 a.m. Mon., June 14
"Get Acquainted—Go as you Please" at French River Camp.
Breakfast in dining car June 14.

Lv. French River 12.30 p.m. Mon., June 14
Lunch and dinner in dining car June 14.
Breakfast, lunch and dinner in dining car June 15.

Ar. Winnipeg 7.00 p.m. Tue., June 15
Evening free for individual activities in Winnipeg.
Sleep on train overnight June 15.
Breakfast and dinner Royal Alexandra Hotel June 16.
Sightseeing drive to leave Royal Alexandra Hotel 10.00 a.m. June 16.
Lunch at individual expense June 16.
Afternoon free for individual activities.

Lv. Winnipeg 10.30 p.m. Wed., June 16
Breakfast, lunch and dinner in dining car June 17.

Ar. Lake Louise 8.00 a.m. Fri., June 18
Breakfast in dining car June 18
Transfer to Chateau Lake Louise June 18.
Sightseeing drive to start from Chateau Lake Louise 10.00 a.m. June 18.
Lunch and dinner Chateau Lake Louise, June 18.
Afternoon free.
Transfer to, and sleep on train night of June 18.

Lv. Lake Louise 7.00 a.m. Sat., June 19
Breakfast, lunch and dinner in dining car June 19.

Ar. Kamloops 7.00 p.m. Sat., June 19
Sleep on train overnight.

Lv. Kamloops 7.00 a.m. Sun., June 20
Breakfast and lunch in dining car June 20.

Ar. Vancouver 5.00 p.m. Sun., June 20
Transfer to Hotel Vancouver June 20.
Dinner Hotel Vancouver June 20.
Return to Steamer at convenience of individual.

Lv. Vanc'r, Steamer 11.45 p.m. Sun., June 20

Ar. Victoria 7.00 a.m. Mon., June 21
Walk to Empress Hotel.

For Return Route

Lv. Vict'a, Steamer 2.00 p.m. Sun., June 27

Ar. Vancouver 6.00 p.m. Sun., June 27
Transfer to Hotel Vancouver.
Dinner Hotel Vancouver June 27.
Rooms Hotel Vancouver June 27.
Breakfast and dinner Hotel Vancouver June 28.
Lunch at individual convenience June 28.
Sightseeing drive to start from Hotel Vancouver 10.00 a.m. June 28.
Transfer to train at convenience of individual.

Lv. Vancouver 11.55 p.m. Mon., June 28

Ar. Penticton 10.30 a.m. Tue., June 29
Breakfast, lunch and dinner in dining car.
Morning free for individual activities.

Lv. Penticton 1.00 p.m. Tue., June 29
Ar. Nelson 2.00 a.m. Wed., June 30
Sleep on train overnight.
Breakfast in dining car.

Lv. Nelson Steamer 2.30 p.m. Wed., June 30
Lunch on steamer.

Ar. Kootenay Ldg. 7.00 p.m. Wed., June 30
Dinner in dining car.

Lv. Kootenay Ldg. 7.30 p.m. Wed., June 30

Ar. Windermere 9.00 a.m. Thur., July 1
Breakfast in dining car.

Lv. Windermere,
Automobile 9.30 a.m. Thur., July 1
Lunch at Mountain Camps.

Ar. Banff,
Automobile 5.00 p.m. Thur., July 1
Dinner Banff Springs Hotel July 1.
Transfer to and sleep on train July 1.
Breakfast in dining car July 2.
Sightseeing drive to start from train 9.30 a.m., July 2.
Afternoon free for individual activities.
Transfer to train. Lunch and dinner Banff Springs Hotel July 2.
Breakfast in dining car July 3.
Day free for individual activities.
Lunch and dinner Banff Springs Hotel July 3.

Lv. Banff 11.30 p.m. Sat., July 3.

Ar. Edmonton 9.00 a.m. Sun., July 4
Breakfast in dining car.
Sightseeing drive to start from station 9.45 a.m., July 4.
Lunch at individual convenience.
Afternoon free for individual activities.
Dinner in dining car.

Lv. Edmonton 8.30 p.m. Sun., July 4
Breakfast, lunch and dinner in dining car July 5.

Ar. Kenora, Ont. 9.00 a.m. Tue., Ju y 6
Breakfast in dining car July 6.
Transfer to Devil's Gap Camp.

Lunch and dinner Devil's Gap Camp.
Day free for individual activities.
Transfer to train.

Lv. Kenora	12.30 a.m.	Wed., July 7
Ar. Fort William	9 00 a m	Wed., July 7

Breakfast in dining car.

Morning free in Fort William.

Lv. Fort William, Steamer	12 30 p.m.	Wed., July 7
Ar. Port McNicoll	8.00 a.m.	Fri., July 9
Lv. Port McNicoll	8.30 a.m.	Fri. July 9
Ar. Toronto	11.55 a.m.	Fri., July 9

IF YOU DESIRE TO TRAVEL TO THE ANNUAL MEETING ON A SPECIAL ASSOCIATION TRAIN, SEND YOUR NAME AT ONCE TO THE GENERAL SECRETARY. STATE THE NUMBER WHO WILL BE IN YOUR PARTY, THE ROUTING YOU PREFER AND WHETHER OR NOT YOU DESIRE A SPECIAI TRAIN BOTH WAYS.

THE ANNUAL FEE

The annual fee of $10.00 for the year 1926, became due and payable on Jan. 1st. Accounts or drafts were issued to all members for their convenience and early attention. Members can assist in greatly reducing routine work and reduplication of labour which entails extra expense, if they will promptly pay the annual assessment. If the fee remains unpaid, please honour as promptly as possible the draft or account which may have been laid aside. Remittances should be made to the Canadian Medical Association, 184 College Street, Toronto. If sending a cheque, please make it payable at par in Toronto.

EXTRA-MURAL POST-GRADUATE EDUCATION

The development of this unique department of Association activities is progressing very well indeed. For purposes of organization two Committees have been appointed. For the Province of Quebec, a Committee headed by Dr. R. Boulet, has undertaken to place speakers in the twenty or more District Societies in that province. Associated with Dr. Boulet are Deans, Harwood, Rousseau and Martin and Drs. St. Jacques, Bazin, Normand and Bourgeois. Several meetings have been held and the scheme is being pushed forward with much vigour.

For the remainder of Canada a central Post-Graduate Committee has been appointed in the persons of Drs. Geo. S. Young, A. Primrose, J. G. Fitzgerald and F. N. G. Starr of Toronto. This Committee, together with the General Secretary holds weekly meetings. At the present time, the Committee is busily engaged in compiling a schedule with the help of the universities and provincial associations, and in planning distribution according to the expressed desires of the several provinces.

While much of the actual detail yet remains to be received from the provincial associations, sufficient canvass of the situation has been made to indicate that local and district societies throughout Canada, desire speakers to visit them, preferably in teams, and at times which best lend themselves to local travel permitting of the largest possible attendance. The General Secretary has covered Canada from coast to coast during the past few months when opportunity to meet provincial executives and local groups presented. Everywhere there was manifest a keen desire for the service and an anticipatory attitude that bespeaks hearty coöperation on the part of the practitioners for whom the whole plan has been designed.

Teachers both within and without the universities are readily responding to the invitations to have their names placed on the schedule. The ground has been prepared, and the profession from coast to coast is being organized into sectional groups ready and willing to welcome visiting speakers. We have definite assurance that teachers are available. The financial sinews to the extent of thirty thousand dollars for one year are now in our possession thanks to the gift of the Sun Life Assurance Company whose President and officers recognize this plan of post graduate education as a means of rendering a most important public service. The coming year is looked forward to by all with the hope that during it our Association may greatly increase in numbers and that much benefit will accrue to

all its members, and to the community at large, from these extra-mural post-graduate lectures.

PROVINCE OF QUEBEC POST-GRADUATE COMMITTEE

The personnel of this Committee appointed to-date consists of Chairman, Dr. Rodolphe Boulet, Montreal; Secretary, Dr. Léon Gerin-Lajoie, 3482 Park Avenue, Montreal; Members, Drs. L. deL. Harwood, C. F. Martin, E. St. Jacques, Elzear Pelletier, A. T. Bazin of Montreal; Dr. George Rousseau, Quebec; Dr. L. P. Normand, Three Rivers.

REGINA ANNUAL MEETING (1925) REPORT OF LOCAL COMMITTEE

A detailed report has been received from Dr. M. R. Bow, Secretary of the Regina Committee, covering the activities leading up to and through the last annual meeting of the Association. The report has been accepted and adopted at a regular meeting of the Regina and District Medical Association.

Space forbids the publication of the report in full. Moreover the details of the programme presented are well known to our readers. It is noted, however, that every physician in active practice in Regina District was a member of one or more committees and that organization work was started in the fall of 1924. The Committees comprised the following sections: Programme, (with nine subdivisions), Finance, Arrangements, Publicity, Exhibits, Hotels and Housing, Motor Transport, Transportation and Entertainment. Chairmen of these committees constituted the Local Executive, this last named body held eighteen well attended meetings. The commercial exhibit proved successful from every standpoint. The exhibits were well displayed and accessible, and the representatives of the firms expressed satisfaction with the arrangements and volume of business done. Prominent in this section was a "Health Display" featured by the Department of Public Health of Saskatchewan which secured much attention and commendation.

The entertainment features contributed in no small degree to the success of the meeting. Without any intention of making comparison but with the sole purpose of showing to what extent the public of Regina and Saskatchewan supported the Medical Committee on this occasion, we desire to mention the hospitality accorded by His Honor Lieutenant-Governor Newlands and Miss Newlands who entertained continuously, including an afternoon reception in the grounds of Government House. Another outstanding feature was the Alumni dinners, held synchronously, but at different places, and developing into very enjoyable functions.

The report shews that the Committee did not neglect the winding up of the event. Suitable acknowledgement was made to all and sundry who contributed in any way to the activities of the meeting. And finally, an official audit was made of the local funds and with great satisfaction it is announced that there remains to the credit of the Regina and District Medical Association the sum of five hundred dollars.

The presentation of such a report dealing with the necessary arrangements in all its complexities is of great assistance in the organizing of future meetings, and is gratefully acknowledged.

T. C. ROUTLEY,
General Secretary.

Suggesting that a doctor should not ask his consulting patient what he complains of, lest the answer be,—"Why, doctor, that's what I came to have you find out." A Toronto surgeon says the question should be,—"How does your trouble affect you?" Once, however, he got a rebuff, when a farmer with cowhide coat, cap and muffler replied to the query,—"I ain't going to tell you a derned thing." The surgeon told him he should see a specialist and gave him the address of a well-known veterinary surgeon. Upon his return and complaining, that the specialist was a "horse doctor," the surgeon's retort that he was an ass and needed a horse doctor, was quite sufficient to remove his disinclination to talk for at least an hour.—*Nova Scotia Medical Bulletin.*

XUM

Men and Books

JACQUES BOURGEOIS. CHIRURGIEN 1621—1701

A. C. Jost, M.D.

It is supposed that Jacques Bourgeois was brought to Nova Scotia by D'Aulnay to attend to the medical and surgical needs of his colonists. With Bourgeois came his wife, Jeanne Trahan, the marriage having taken place but a short time before his arrival in Nova Scotia. It is thought that the year 1640 was for him a notable one, it being not only the year of his marriage, but the year in which he first set foot in the young colony in which he played so prominent a part.

If Rameau St. Père is correct in his conclusions, he was one of a party of colonists, many of whom were closely connected by marriage; another prominent member of the little coterie was Germain Doucette de la Verdure, D'Aulnay's man of affairs, who after D'Aulnay's death became the protector of his children and his estate.

Soon after his arrival in Port Royal, Bourgeois was able to obtain an interest in some land (L'Ile Aux Cochins) concerning which there was at a later date some litigation, though in the interval Bourgeois' holdings had been at least partially conveyed to another colonist.

After D'Aulnay's death in 1650, the colony at Port Royal fell upon troublous times. In 1654, when Sedgewick was able to wrest the control of the little fort from Doucette, Bourgeois was delivered to Sedgewick as a hostage for the carrying out of the capitulatory agreement. After the terms of the convention had been met, and during the period of relative quiet which followed Jacques Bourgeois not only increased his holdings of land, but is said to have carried on considerable trading with the Indians and with the English colonists to the south, in vessels the construction of which he had himself overseen. In 1671 he was one of the most prominent men in Port Royal. His family then consisted of his wife and ten children, and his agricultural holdings were among the most considerable of the colony. In addition to the home establishment under the protection of Port Royal he was about that time engaged in promoting the foundation of a commercial and farming enterprise, which later became Beaubassin, one of the largest offshoots from the parent colony. In the development of this settlement he was very deeply interested, relinquishing for it to his sons his lands at Port Royal, and leading to it a number of Acadians, both relatives and friends who were willing to undertake with him the task of pioneering in a hitherto unsettled district.

The task involved difficulties greater than those usually met in such attempts. La Valliere, pressing his claims of possession of the land as within the limits of his seigneury, resented his presence, and the absence of protection made the new settlement vulnerable to attack from the English colonists; but in spite of all obstacles the settlement made rapid progress. It was of this period of Bourgeois' life that Rameau thus writes,—"This Jacob Bourgeois, brought by D'Aulnay as surgeon to his forces, who takes one holding, then two, then three, who clears and cultivates them; then sells them and buys them back; who builds vessels and opens up a trade with the Puritans of Boston, becomes to us a striking personage. He has character; he steers his course with prudence and does not allow himself to be made tipsy by success, and acts in all things with that moderation which conduces to success and merits it."

"He installs his sons in the businesses he has founded, and in his old days goes to found at the head of the Bay of Fundy, at Chignecto the first colony of Acadians. There, although aged seventy-five years, he bears in 1696 the shock of an invasion of English pirates; he can not rely on the strength of his enfeebled arm to protect himself and his friends, but his brain has retained its clearness and its firmness. He visits in his little boat the enemy flotilla; he recognises among these unwelcome visitors persons with whom he had business dealings in former days; he had then been of service to them, and had letters to show the value of that service. These letters he shows; the old man astonishes them; his energy dominates them, and earns a recognition and a welcome. He entertains in his home his old associates, and he and his are thus saved from spoliation. Was this, then, an ordinary man?"

He died about the year 1701, supposedly at Beaubassin. His family had in it those apparently capable of carrying on the work he had

undertaken, and members of it had places of more than minor prominence in the rapidly growing settlements. But the blight of the expulsion in 1755 involved them in its tragedies, so that a few years thereafter his descendants were scattered from Quebec to Louisiana, from France to the Cayennes. Gaudet has attempted to construct from the material available a genealogical tree of the descendants of Nova Scotia's first permanent surgeon, and has followed in his efforts the different branches of the family to the widely separated localities where their fortunes has scattered them. A few of them escaped the English dragnet; others succeeded in working their way back to the lands of their fathers, and many French Acadians, especially those living in New Brunswick, can today trace their origin back to D'Aulnay's surgeon.

REFERENCES

Rameau St. Pere.—Une Colonie Fèodale. Documents Inedits: Gaudet, Acadian Genealogy.

THE CENTENARY OF CHARCOT

There are still living many who were pupils of Jean Martin Charcot, but to too many of us he is little more than the name associated with "Charcot's joint disease." The occasion, however, has now come for recalling his memory, in that the hundredth anniversary of his birth (November, 1825) has recently been celebrated in Paris, and celebrated with a ceremony and depth of respect which we do not accord to even our greatest medical men.* British representatives in attendance at this commemoration have described it as "perhaps the most wonderful tribute ever paid to any medical man, and paid to him, not as a scientist, nor as a discoverer, but just as a physician whose work and personality had made a deep and permanent impression on the science and art to which he had devoted his talents and his life." One of the events was attended by the President of the Republic, a performance of national homage to which it would be difficult to find a corresponding echo in our own countries.

The comment has been made that Charcot was more of a co-ordinator and man of method than a true inventive genius. That is apparent on looking over his writings. He has left nothing which will stand out in history as does the monumental work of Harvey, or Jenner, or Pasteur. Rather did he labour in wide fields, bringing their contents into perspective by virtue of that quality of orderliness which was so well developed in him, amongst those other qualities which taken together made him that not altogether easily definable combination called a great teacher. There was also his lucidity of expression. Sir David Ferrier once remarked to him that he always admired the clearness of writing of French authors, to which Charcot replied that this was because the French language did not allow anyone to be obscure. The modesty of this self-depreciation, however, could deceive no one as to Charcot's innate power of clear thinking, without which no language could have saved him quite from being obscure.

His appearance was striking: it was a pardonable vanity—and he shared it with other great men—that he liked to be reminded of his resemblance to Napoleon. But his dignity of manner and coldly impartial air did not prevent him from exercising an extraordinary power over his patients. He had the gift of stimulating younger minds, and this was the secret of his building up a school of neurology such as had not been seer before in the profession. So widely known did his teaching become, that his neurological clinics and lectures at La Salpêtrière became the Mecca of medical men the world over. His demonstrations were attended at one time or another by nearly all the leaders of contemporary medical thought, and, as has been said, "the fledgling just escaped from the academic nest might sign his name in the visitors' book between those of Rudolf Virchow and Grainger Stewart."[1]

For his crowded public clinics the dramatic element in his many-sided personality soon evolved methods to heighten the effects of his teaching. He would demonstrate cases on the stage of a miniature theatre, with all the accessories of footlight and scenic lighting, and while the patient stood in the flood of light Charcot would lecture from the side, being careful to speak slowly and distinctly for the sake of his many foreign visitors. And after the patient was dismissed he would throw a picture of the particular lesion on to the screen at the back of the stage.

One sees this dramatic vein in more than one of the incidentals of his life, and not least in the scene of his labours, the vast institution of La Salpêtrière, now the most important neurological centre in Paris as well as an almshouse with

*Vide Osler's comment, in his memorial notice of Charcot (*Bull. Johns Hopkins Hosp.* Sept. 1893.)

nearly 2700 beds. Its association with gunpowder, as implied in the name, arose from the fact that it was first built as a powder factory, in the reign of Louis XIII, and later handed over to the famous philanthropist St. Vincent de Paul to further his efforts in caring for the numberless beggars and unemployed of the time. From then on there was a gradual sorting out of its miscellaneous swarm of vagrants, prostitutes, criminals and insane. At a period when Paris itself had less than half a million people, La Salpêtrière contained five to eight thousand, amongst whom were a goodly proportion of epileptics and insane. In Charcot's day, however, it was a hospital containing a large number of chronic incurable patients, as well as aged and infirm people. It was indeed a mine of clinical wealth for anyone who could work it, and this was what Charcot proceeded to do for over thirty years. In the later years of his life he became almost completely absorbed in studying hysteria and hypnotism, and it was this work which has more than anything else made his name famous. Protean in its manifestations and mysterious in its causation the condition continues to be, but by his precise and methodical comprehension Charcot introduced an orderly view where before there had been chaos. He confined himself however to no one special subject: his work on chronic pneumonia, on rheumatism and gout, on endocarditis, on diseases of the liver and kidneys, all characterized by close observation and clear reasoning, remain most important contributions. The late Sir Clifford Allbutt recalls[2] how at a meeting of the British Medical Association, some time before Koch's discovery of the tubercle bacillus, Charcot was surrounded by a group of distinguished physicians who laboured to impress upon him that pulmonary phthisis was not one disease, but many—was tuberculosis, was caseous pneumonia, was hæmorrhagic injury, was "*la granulie*," and so forth—and how gravely Charcot listened to this and to that, how impartially he accepted such truth as there might be in the views of each speaker, and yet, when all was done, how quietly and surely he laid his hand upon his drawings of the dead tissues, and repeated, "Yet it is all *one process*." This was the tenacity which made him so strong a figure in his world, but this also was unerring accuracy of insight which gave him his high place in medicine.

The artistic element was strongly developed in him, and, indeed, as a youth he had ideas of being an artist, but he was the son of an artisan, and his lack of means forced him to take up medicine. His home bore witness to his æsthetic taste in its rich collections of artistic objects, but he would always be at his desk at six o'clock in the morning, and no social distractions were allowed to come between him and his work. He was fortunate in having independent means (he married a rich wife) and it served to accentuate his lack of ability to appreciate the value of money. His patients would sometimes come to his secretary to relieve themselves of their indebtedness, or surreptitiously leave their fee behind them. Nor was he impressed by rank. A princess whom he once kept waiting sent him in an angry remonstrance: upon which he remarked that she evidently was not aware that they had taken the Bastille!

To again quote Sir Clifford Allbutt: "Charcot's mind was so receptive that at times he seemed to collect material with more curiosity than discretion, (but) his intellect was strong enough in time to hold the true and reject the false. Again, to Englishmen he appeared too indifferent, in the Salpêtrière, at any rate, to curative measures as such. Still none can fail to see in him a penetrating observer and a powerful and deliberate thinker, free from all *vices d'esprit* and thus best fitted to grope in the dark and thorny subjects with which his name is chiefly associated. Although deeply interested in the mobile and evanescent phenomena of the morbid functions of the nervous system, he kept his intellect sound and progressive by his hold on positive pathology. And if, in respect of their date, his lectures and observations must fall behind the place of the science of to-day, yet they can never fail, in addition to their intrinsic value, to present to younger men an example of the methods of a great teacher in his search after truth."

H. E. Macdermot

References

(1) *Brit. Med. Jour.* Aug. 26, 1893. (2) *Ibid.*

Abstracts from Current Literature

MEDICINE

A Consideration of the Prognosis in Subacute Bacterial Endocarditis. Libman, E., *Am. Heart Jour.*, 1925, October, Vol. I., No. 1.

In no disease is the prognosis more difficult and uncertain than in subacute bacterial endocarditis. At the beginning of the century the affection was regarded as almost uniformly hopeless, and even in 1910 views regarding the outcome were much gloomier than they are to-day. There is therefore an especial need for studies such as the present one by Dr. Libman, in which he reports on a series of over 800 cases, followed throughout a period of twenty-five years. The outlook of the disease in the writer's opinion depends upon the type of case, and he distinguishes five groups:

Group A. *Those of unusual type.* The course of these was fairly typical of cases which formerly were regarded as invariably hopeless; cases with marked elevation of temperature and positive blood cultures and frequently, embolic phenomena. The unusual feature was the absence of any sequelæ, not even embolism, although the cases were observed for a considerable length of time. These patients did not show any myocardial insufficiency, beyond what may have been present before the infection occurred. Dr. Libman has records of at least ten complete recoveries in this group, not including those that came under observation in the bacteria-free stage, developed a recurrence, lost the infection, and continued with the symptoms of the pre-existing bacteria-free stage. There is no evidence that the recoveries were due to any of the therapeutic methods employed. In some of the cases bacteria were *not* demonstrated in the blood, but at post mortem the vegetations were found to be full of them. It is suggested that improved methods of technique, notably the Smith-Noguchi and Rosenow methods, will give much higher percentages of positive blood cultures. The cause of death was most commonly exhaustion; embolism of the cerebral vessels was quite common, but of the coronary arteries very rare.

Group B. *Cases in bacteria-free stage.* A not inconsiderable number of cases of this type came under observation. They presented valvular defects and signs of a previous attack of subacute bacterial endocarditis, but the blood cultures remained sterile, and at post mortem, the vegetations, even when stained by special methods, showed few or no bacteria. Healing was taking place by fibrosis and calcification, although it is recalled that healing may be observed in the depths of even the most actively growing vegetations (Osler's Goulstonian Lectures.) Abundant proof of spontaneously healing and healed cases of this type of endocarditis has been brought forward. Attention is drawn by Libman to the hyperplasia of the pulp of the spleen which is so remarkable an accompaniment of the healing endocardial lesions. Cases in this stage are essentially afebrile. There may be fever in the transitional period, or if there is marked anæmia ("anæmic fever"), or if large infarctions exist. Usually also there is a valvular defect, with one or more of the following manifestations, in varying combinations: a peculiar brown pigmentation of the face, renal insufficiency, splenomegaly, and embolism. Myocardial insufficiency is much more marked than in the active bacterial stage. A moderate enlargement of the spleen is practically always present. Tenderness of the lower sternum is very common. Osler nodes are much more common in the active stage; Dr. Libman only found them in three out of twenty-one cases in the bacteria-free stage. It was found that the bacteria-free stage might last as long as two and a half years: probably they last much longer. This pre-supposition of the existence of short and mild forms of this infection to account for the fact that patients occasionally passed through its stages without the disease being recognized, has since been verified by Dr. Baehr. Since patients with positive blood cultures may make a complete recovery without clinical residua, and since we find patients in the bacteria-free stage who give no history of the active stage of the disease we must, in this writer's opinion, take for granted the existence of cases in which such an unrecognized infection of the myocardium has taken place with recovery without clinical residua.

Group C. *Transitional cases;* illustrative of what has just been said and which belong es-

sentially in groups A. and B. A case is quoted in which the suspicion that the patient was just emerging from the infectious period was confirmed by his own observation that the fingers had become progressively clubbed for several months, but that just before coming under observation the clubbing had diminished. The post mortem showed lesions which were in part still bacterial, with many more that were bacteria-free. In Dr. Libman's experience this type of case was fatal within a comparatively short time. He sees no reason, however, why they might not survive for a long time, or even recover.

Group D. *Mild cases.* It has been clearly established that a mild form exists. The first important contribution was made by Oille, Graham, and Detweiler in 1915, who described twenty-three cases of a sub-febrile condition in which an hæmolytic streptococci were found in the blood. These patients all recovered. In 1924 a further report was made of twenty of them known to be living. In 1920 Salus of Prague reported an endemic of eighteen cases with similar blood cultures. It is, however, necessary to bear in mind that the presence of an hæmolytic streptococci in the blood may be equally indicative of a mild form of rheumatic fever. If no valvular defect is found the diagnosis may be extremely difficult.

Group E. *Recurrent cases.* The evidence as to these is conclusive, and there may or may not be recovery. The recurrence of the infection may be due to a bacterial invasion from focal infections (e.g., tonsillitis), or it may be from bacteria deposited in various tissues during a previous attack.

Dr. Libman concludes that the most important aspect of treatment is in the prevention of the disease, for even if the infection be overcome the danger from the various sequelæ is still great. Even the mild forms of the disease which are so easily overlooked, or which may last for long before coming under observation, may cause valvular damage. H. E. MacDermot

A Study of "Cured" Cases of Syphilis in the U. S. Army. Schwartz, S. C., *The Military Surgeon,* 1925, August.

A study of syphilis in the U. S. Army is helped by three important adjuncts. (1) A register which contains complete details of each case, with a record of the serum reactions, treatment and progress. (2) The issuance of circulars for the guidance of the medical officers in the treatment, and (3) a standard of cure, which is as follows: "One year of observation must elapse after all treatment has stopped. During this year there must be no clinical evidences of syphilis, several negative Wassermann reactions and no positive ones. At the end of the year, a complete physical and laboratory examination, including that of the spinal fluid and a provocative blood Wassermann reaction, must be negative. If all these requirements have been fulfilled the case can be closed as "cured."

The treatment recommended in the Army consists of courses of six doses of arsphenamin at weekly intervals, and insoluble salicylate of mercury in doses of 65 to 120 mgm., one course to consist of twelve weekly injections.

In a re-survey of 100 of these "cured" cases, 77 per cent have remained cured, 9 per cent are doubtful, and 14 per cent have relapsed, on subsequent examination at the end of the second year. It was found that cases treated in the secondary stage gave as good results as those treated in the primary stage.

H. E. MacDermot

Primary Pneumococcus Peritonitis in Children. Montgomery, A. H., *Surg. Gyn. and Obst.,* 1925, December.

Peritonitis due to the pneumococcus is of two types, the primary, with which the author deals in this contribution, and the secondary, a rather uncommon complication of pneumococcus infection elsewhere in the body.

The primary form is a disease of young girls, and rarely, if ever, occurs in boys. It is a disease of childhood, most of the cases occurring between the ages of five and ten years. The peritonitis may be diffuse or localized. When diffuse, the peritoneum is red and the abdomen filled with green odourless pus, with here and there plaques of adherent fibrin. The lower half of the abdomen is more affected than the upper. The localized form gives an abscess usually in or near the brim of the pelvis. The pus is again green and odourless and the abscess cavity lined with fibrin. The determining factor as to whether the disease will be localized or diffuse, is, according to Michant, the degree of virulence of the organism. In primary pneumococcal peritonitis all

abdominal organs as well as all other parts of the body are normal. The infection can arrive at the peritoneum by the blood stream, the lymph, the gastro-intestinal tract, or the genital tract of the female. The consensus of opinion favours the female genital tract as the path of infection. McCartney and Fraser are strong supporters of this theory and their clinical and experimental studies are cited freely by the author. In thirty-six cases, all girls, they found that the patients were from very poor hygienic surroundings. In studying vaginal smears from girls of that social status they found pneumococci in a goodly number, and also isolated the same type of organism from the mouth, throat, and blood.

The symptoms of the circumscribed form are as follows: sudden acute pain followed by profuse and persistent vomiting. diarrhœa, and fever. At the end of ten days a localized abscess forms and the general symptoms moderate. If the abscess is not opened surgically it ruptures spontaneously, usually at the umbilicus, and rarely into the bowel, vagina, or bladder.

In the diffuse form the picture is much more intense, with delirium, sordes, typical facies, and in many instances early death. There is a singular absence of localized tenderness and rigidity, but commonly a doughy feeling.

The diagnosis is rarely made in the diffuse form before the abdomen is opened, but should always be thought of in a case of peritonitis in a young girl.

Heretofore opinion has been against operative interference, but the author has obtained better results in the diffuse form by making an opening in the abdomen, inserting a drain, and thereby reducing intra-abdominal tension and absorption. In addition, all other methods of supportive treatment are carried out, e.g., heat, morphia, and abundance of fluids.

R. V. B. Shier

PÆDIATRICS

The Carbohydrate Metabolism of the Normal Infant. Tisdall, F. F., Drake, T. G. H. and Brown, Alan, *Am. J. Dis. Child.*, 1925, November, vol. xxx.

Conflicting values for blood sugars in fasting infants are due chiefly to the fact that a number of workers did not determine carefully the interval required after a meal for the blood sugar to return to fasting level. There is a great variation in different infants, but in certain cases an interval of over three hours after feeding was required for the blood sugar to return to the original value.

Other workers have made the interesting observation that during the first two weeks of life the blood sugar is at a distinctly lower concentration than at any other period.

The average fasting blood sugar in sixty-eight normal infants varying in age from one to eighteen months was 0.085 per cent. From a review of the literature and their own results the authors conclude that fasting blood sugar in normal infants does not vary more than from 0.075 to 0.095 per cent.

The effect on blood sugar of the oral administration of 1 oz. of the various carbohydrates was observed, 5, 10 and 15 per cent solutions of glucose being injected subcutaneously. Ten c.c. per pound of body weight was given. In no instance were any local or general ill-effects observed.

The blood sugar one half hour after the injection of a 10 per cent or 15 per cent solution is about 0.225 per cent. It returns to the original level in two or three hours.

The rapid removal of glucose cannot be accounted for by the kidney excretion which was usually less than 2 per cent. It has been calculated that in adults 18 per cent of injected glucose was oxidized in the following two and a half hours. If these figures apply to infants it would indicate that the greater part of the injected glucose is stored either as glycogen or hexose—phosphate compounds or changed to fat.

As to the water it has been shown that after an injection of sodium chloride solution equal to the calculated blood volume the original blood volume is restored in thirty minutes. The authors found that after injecting 10 c.c. per pound of body weight for 10 per cent solution of glucose the injected fluid was removed from the blood stream within half an hour of its administration. The amount excreted by the kidney during the two hours following injection was about 10 per cent of the amount administered. Other workers have concluded that the tissues act as a reservoir for the injected fluid and can store four times the normal blood volume of the animal.

XUM

Some of the injected glucose is stored as glycogen and the glycogen molecule carries with it a number of molecules of water. It would appear that the injected fluid is stored temporarily in the tissues. LILLIAN A. CHASE

A Frequent Cause of Dyspepsia in Breast-fed Infants. Dr. Toverud, Oslo, Norway, *Amer. Jour. Dis. Child*, 1925, November.

Breast-fed infants, who, after doing well for a time, stop gaining in weight, become fretful and vomit, are often suffering from partial starvation. The stools may be small and dark or loose and foul smelling. Mucus and fat curds may be present. Such symptoms are often designated as dyspeptic and are considered to be due to over-feeding, when in reality they are the result of partial inanition as may be proved by weighing before and after nursing. Moreover when supplementary feedings are given the symptoms promptly disappear.

Vomiting is a frequent symptom of underfeeding and the two combined may lead to the condition of athrepsia. The crying is probably due to abdominal pain which is caused by so-called "hunger contractions." These rhythmic contractions start in the stomach and travelling down the intestinal tract lead to discomfort, pain and diarrhœa.

Constitutional anomalies and parenteral infections may also lead to similar symptoms, but by weighing the child before and after nursing the exact amount obtained from the breast may be ascertained and treatment instituted accordingly. L. M. LINDSAY

Tetany as a Cause of Convulsions in Whooping Cough. Powers, Grover F., M.D., New Haven, Conn., *Amer. Jour. Dis. Chil.*, 1925, November, xxx, 632.

It is the purpose of this paper to call attention to the fact that infantile tetany, and not anatomic injuries or an unknown toxin, is often the cause of convulsions in whooping cough. The wide recognition of this fact is important because the convulsions of pertussis, in which death not infrequently occurs, may be amenable to adequate treatment when the patient has tetany. The case histories of five infants suffering from pertussis complicated by convulsions are presented. The diagnosis of tetany was based on the clinical signs present, associated with a lowered blood calcium, and on the response to therapy by calcium chloride, cod liver oil and artificial sunlight.

The author gives a review of the current literature regarding the etiology of convulsions in pertussis. Some ascribe the attacks to a "toxin" or to "a peculiar susceptibility of the patient brought about by the disease itself." Some of the German authors regard the convulsions as the expression of a latent tetany which has become manifest through the influence of severe illness. The author suggests that the calcium concentration of the blood and the electrical reactions of all infants with whooping cough should be determined if possible, and therapeusis guided by the evidence for or against the existence of latent tetany. In the event that these determinations cannot be made, calcium chloride should be administered to young children who have whooping cough complicated by convulsions, even if there is no clinical evidence of tetany or rickets. Furthermore it would seem highly advisable, regardless of clinical signs or laboratory data, to treat all *infants* suffering from whooping cough with cod liver oil or radiant energy, or both. R. R. STRUTHERS

DERMATOLOGY

Baker's Dermatitis. Mummery, H., *The Lancet*, 1925, September, 647.

The dust present in bakeries is put down as the cause of intractable and relapsing skin eruptions common in baking and confectionery trades. Workers in all the departments of the factory are subject to the dermatitis. Those handling flour, dough or sugar are not the only victims.

The eruption is very itchy. The primary eruption is vesicular, followed rapidly by secondary lesions, with fissures between, and on the posterior surfaces of the fingers. Unless arrested the eruption spreads rapidly at the periphery and soon resembles vesicular eczema.

The vesicles contain a clear, straw-coloured fluid, containing yeast-like mycelial growths. This fluid inoculates any abrasion of the surrounding area and scratching helps this process. The disease is communicable between persons through minute abrasions of the epidermis, common among workers.

Prophylaxis yields satisfactory results. Persons with dry skin should be excluded from the baking trade. Manicuring and individual towels and occasional rinsing in mild sodium hypochlorite solution are advised. Vesicles should be punctured and fissures painted with 3 per cent silver nitrate solution. Inunction of 33 per cent subchloride of mercury is entirely satisfactory. C. R. BOURNE

SURGERY

Bladder Neoplasms. McKenzie, D. W., *Surg., Gyn. and Obst.*, 1925, December.

The common types of bladder tumour are the papillary fibro-adenomata, and the papillary villous tumours, while the less common ones are the squamous-celled and cylindrical-celled cancers. Fibro-myomata and sarcomatous myomata also occur. The very rare tumours are the round-celled and the spindle-celled sarcomata, lympho-sarcoma, and osteo-sarcoma.

The author states that the large proportion of inoperable bladder tumours is rightly attributed to lack of examination with the cystoscope early in the course of the disease. With this instrument the diagnosis is easy. Blood in the urine is never physiological; it always means some pathological condition. Benign tumours seen in the bladder with the instrument are delicate, floating, pale pink, warty growths. The neighbouring mucous membrane looks quite healthy. Malignant tumours are often single, with necrosis of the masses, or covered with exudate. The adjacent mucosa is often œdematous and rugated, so-called bullous œdema. Vaginal and rectal examination will often yield increased resistance in the case of a malignant growth to the examining finger.

In the author's series 75 per cent complained of hæmaturia, 25 per cent of urinary frequency, and 15 per cent to 20 per cent of dysuria. As a rule ordinary examination reveals very little. There may be bladder tenderness, and in cases of carcinoma with infiltration rectal examination may be suggestive. Kidney function is usually below normal.

With regard to treatment, the papillomata yield strikingly to fulguration. Extensive papillomatosis is best treated by cautery. In carcinomata the high frequency current is of little use except as a hæmostatic.

The author's technique for removal of bladder tumour is described. R. V. B. SHIER

ANÆSTHESIA

Explosion of Anæsthetic Gases. Herb, H. C., *J. Am. M. Ass.*, 1925, September 5, 1788.

Since the introduction of ethylene as an anæsthetic there have been five explosions of a mixture of this gas with oxygen in the operating room of the Presbyterian Hospital at Chicago, fortunately without injury to anyone. Dr. Herb discusses the distribution of the electro-static charges which give rise to the sparks causing these explosions. Their prevention depends on the proper construction of the operating room floor. This should be made of small squares of tenazzo separated by narrow brass strips. This grille of brass is electrically connected together and grounded to the water pipes. Each piece of movable equipment, such as tables, stands, and anæsthetizing machine is equipped on the under side with several small link brass chains, which are long enough to drag on the floor several inches. Regardless of the portion of the equipment on the floor at least one of these chains will be in contact with a brass strip, these all are grounded and a difference of potential is impossible.

W. B. HOWELL

Carbon Dioxide as an Aid in General Anæsthesia. Lundy, J. S., *J. Am. M. Ass.*, 1925, December 19, 1953.

Carbon dioxide has been used as an adjuvant to general anæsthesia in 1,350 surgical operations at the Mayo Clinic. It was added to nitrous oxide, ethylene and ether, when these anæsthetics were administered alone or in combination with one another. The increased volume of respiration produced by CO^2 increases the rate of absorption of the various anæsthetics. Struggling, breath holding and cyanosis are lessened, and, during light anæsthesia, there is greater relaxation. CO^2 has been used with benefit in combination with nitrous oxide and ethylene in obstetrics, and in combination with oxygen for resuscitating newborn infants. The addition of CO^2 makes gas anæsthesia safer in children. No mixture used should contain more than 5 per cent CO^2.

W. B. HOWELL

Medical Societies

PUERPERAL SEPSIS

"Puerperal Sepsis" was the subject discussed at the meeting of the Royal Society of Medicine, in the Section of Obstetrics and Gynæcology, on December 3rd. Dr. Phillips, of the Monsall Fever Hospital, Manchester, described what seemed to him the most rational form of treatment,—namely, a means of increasing drainage by promoting a flow of lymph through the uterus. A catheter was passed up into the uterine cavity, and whatever pus might have collected was allowed to drain off, and then the cavity was filled with glycerine, which is a powerful tissue dehydrant. This was repeated once or twice a day until signs of active inflammation had passed. In cases of septicæmia, intravenous injections of novarsenobillon as a bactericidal agent, and the transfusion of immunized blood to strengthen the patient's defense mechanism, often gave remarkable results.

Dr. Colebrook, discussing the results of laboratory investigations, said that in his opinion the hæmolytic streptococcus was the infecting organism in over 90 per cent of cases of septicæmia. The virulence of the infection could be judged by the number of organisms per c.c. of blood, more than 100 being fatal. The aim of any treatment should be to produce an outward flow, and this he believed was most effectually accomplished by glycerine.

At the Edinburgh Obstetrical Society on November 11th, Professor Watson, the retiring president, spoke on "Puerperal Sepsis. In his address he stated that all methods of treatment fell under one of the three heads: prophylactic, specific and non-specific. The importance of ante partum care, which ought to include the removal of all toxic foci, and the treatment of purulent vaginal discharges was emphasized. Fresh air, sunlight and good nursing were essential. Anti-streptococcic serum seemed beneficial in some cases, but of all forms of specific therapy that of immuno-transfusion had in Professor Watson's hands proved most successful. The patient is transfused with blood from a donor, who three hours previously had been immunized with stock vaccine. Fowler's position, arsenobenzol and quinine have also proved helpful aids in the treatment of puerperal infection.

ELEANOR PERCIVAL

Vaccine Treatment of Whooping-cough.—A Pondman (*Nederl. Tijdschr. v. Geneesk.*, October 24th, 1925, p. 1893), records the results of a questionary sent to medical practitioners who had employed the pertussis vaccine prepared by the Dutch Serological Institute at Utrecht; 89 answers were received, with the following results. The local reaction appears to have been insignificant. Only six practitioners stated that a small infiltration had occurred after large doses had been given, and in one case a transient urticaria was observed. As regards a general reaction 18 showed a slight rise of temperature not exceeding one degree, and in 5 the temperature was somewhat higher, the highest recorded being 102.6°. No reply was received about a focal reaction—that is to say, the effect of the vaccine on the respiratory tract. As regards the prophylactic value of the vaccine 12 answers were received, of which 8 were favourable, 3 were partly favourable, and 1 unfavourable. Of the 89 answers concerning the curative effect of the vaccine, 21 had to be excluded as the numbers treated were too small to justify a conclusion. Of the remaining 68, 61 were favourable and 7 unfavourable. Pondman's conclusions as the result of the answers to the questionary are as follows: (1) As a general rule it is advisable to increase the dose. (2) There is no objection to this, as no bad results were reported. (3) The vaccine should be prepared from different strains of pertussis bacilli.—*Brit. Med. Jour.* Jan. 9, 1925.

"Doctor," said he, "if there is anything the matter with me don't frighten me half to death by giving it a scientific name. Just tell what it is in plain English." "Well," said the doctor, "to be frank with you, you are merely lazy." "Thank you, doctor," said the patient. "Now give me a scientific name for it, so that I can go home and tell the wife."

Miscellaneous

MEDICINE AS A CAREER FOR WOMEN

Address by Sir Charles Sherrington at the London School

The inaugural address at the London (Royal Free Hospital) School of Medicine for Women was delivered on October 1 by Sir Charles Sherrington, O.M., President of the Royal Society. The dean of the school, Dame Louisa Aldrich-Blake, presided.

Sir Charles Sherrington said that he imagined that in this particular school, whatever might be the case in any other, all the students desired to enter the profession of medicine for no other reason than that medicine really appealed to them. That in itself was a pledge of enthusiasm, and no small asset to student and teacher alike. In the nature of things there were not so many callings open to women as to men, but medicine at least offered to women the opportunity of earning their living. Medicine had been termed a poor trade but a noble profession. Among the callings, medicine as a progressive science stood almost alone in its availability for women. The women who yearned to be in the mid-current of progress and to feel and understand and further that progress, could rest assured that medicine would give her the opportunity in the fullest and most satisfying ways. The existence of that school and its success showed that women's rightful place in medicine was won, not by aiming at the possession of man's particular qualities, but by applying to medical work her own womanly nature. The fact that women should enter and practise medicine freely was another evidence of a progressive profession.

Those who went first along any path found it more lonely and difficult than those who followed after, and the school did well to remember with pious honour those who had led the way. All new social adaptations came slowly.

"The convincing logic of your case stands plain to me," Sir Charles Sherrington concluded. "One of the things this school has proved is that women are well able to fulfil the expanding social duties that send them forth. Every case of sickness is not only a problem for medical science and art, but the suffering of a fellow creature, and women at least will not forget that. There is a story of a man who, after being refused by a lady, entered a medical career to harden his heart! But it is wholly a mistake that medical routine tends to blunt the feelings. Egotism may harden the heart, but knowledge never. Medicine enhances compassion and instruments it. Pure science, it is true, is intellectual and abstract, like mathematics, but at the bedside the case is always concrete. Science teaches humility, and humility is close to sympathy. Sympathy armed with understanding is surely what medical women stand for. I would assure those who by reason of their enthusiasm for medicine enter upon it in this school, that their enthusiasm is well founded."

VIENNA AS A POST-GRADUATE CENTRE*

"My wife and I have been here over three months now, and as the first three weeks were spent in an exhaustive search for an apartment, we feel that we have seen the greater part of the city already. Our general impression is that for the number and quality of its beautiful buildings, it outclasses both London and Paris. We have hardly begun to see its art treasures, but the collections we have seen are very beautiful and are extraordinarily interesting.

"Unfortunately, the influence of post-war poverty is everywhere in evidence. This is especially noticeable in respect to the traffic, which may be compared in volume to that of any small Canadian town on an ordinary day. All the buildings are of stone, and they tell us that in pre-war days, they were all kept in a snowy white condition. Practically all of the large houses have been turned into apartment houses, to overcome the acute condition of overcrowding in the city. There are six million people in Austria, and nearly half of them are living in Vienna.

"The abundance, variety and excellence of their music is, I imagine, as good as it has always been reputed to be, for their twenty odd concert

* Abstract from a private letter written from Vienna, under date of November 7, 1925, by Dr. G. W. Abbott-Smith there at present engaged in post-graduate studies in medicine.

halls and numerous theatres are always crowded. The big State Opera House—they have a smaller one as well—is one of their newer buildings, only 200 years old. The programme changes every night.

"An interesting sidelight on the Viennese ideals is the fact that professors are given the best seats at the opera on payment of merely a nominal sum, and they travel on the railways at a much reduced rate. The professors, regardless of their subject, are the great men in Vienna, and probably exert the greatest sway on the destinies of the people.

"The great recreation is mountain climbing, and every Sunday morning the trains, leaving at four and five in the morning are crowded with enthusiastic "Alpiners" picturesquely garbed in their bright coloured mackinaws, with bare knees, hobnailed boots, three pairs of socks and plumed hats, and carrying enormous rucksacks on their backs. There is a small though quite good golf course in the extensive and wooded Volks Prater (Park), in which cars are allowed. Golfing is an expensive luxury, though this is counterbalanced by the cheapness of the caddies, who only charge fifteen cents a round, and never allow you to lose a ball. They also have many excellent tennis courts scattered throughout the city. There is a good racecourse, with a turf track, where they frequently have international events.

"But I must confess to two great disillusionments since coming here. The first is the colour of the Danube, which over the considerable stretches which we have seen of it, has proved to be not blue, but a muddy brown. The second is that the cost of living is practically the same as at home; owing to the fact that they have stabilized the value of their kronen. They still talk in thousands of millions of kronen, but they have a new unit, the schilling, which equals 10,000 kronen, or fourteen cents in Canadian money.

"As regards medical teaching, it is certainly all that it is said to be, and is made easily accessible to the foreigner who only speaks English. They have been teaching post-graduates from all over the world since the year 1300, and they seem to have acquired the knack. The hospital in which I am working has 3,000 beds; and there is another one in the city with 7,000 beds. When one considers that in these hospitals they obtain 100% of autopsies, can one wonder that they are masters of pathology? All their doctors are clinical men, yet none of them can hope to obtain a rise in position without presenting some original research of definitely practical value. Everyone of them starts out with a definite aim for a professorship, which he cannot hope to obtain under twenty-five years of very hard work. All this vast clinical material, and all the fruits of the endless research work that is forever going on, is fully available to the foreign post-graduate physician. At the same time the majority of the best teachers speak English. All didactic courses and clinical courses, which are taken in small groups of four to six men, are organized and arranged by the American Medical Association of Vienna. There are continually a large number of such courses going on. One could fill a day from eight a.m. to seven p.m. in attendance on such courses, if one wished. The average cost of such instruction is about $100 per month. The best arranged departments are the following; Otology; Rhinology and Laryngology, Opthalmology, Dermatology, Gynæcology and Obstetrics, and Pathology. The last named requires a knowledge of German. I must also add that one can obtain lessons in medical German from the best teachers for fourteen cents per hour, and considering that all their work is published in their monthly journals, very little of it being translated into English until years later, this opportunity to learn the language under the best conditions is probably one of the most valuable assets obtained from coming here. All the men who have visited the principal medical centres of the world seem to agree that this city far exceeds them all in the matter of post-graduate teaching. There are ten McGill graduates here now, and I believe that there has hardly been a time when McGill hasn't had some representatives in Vienna."

A SURVEY OF POST-GRADUATE TEACHING IN OTO-LARYNGOLOGY IN CERTAIN EUROPEAN CENTRES

EDWARD TREMBLE, M.D., C.M.

AND

KEITH HUTCHISON, M.D., C.M.

Clinical Assistants in the Department of Oto-Laryngology, Royal Victoria Hospital, Montreal

Sailing from Montreal in mid-September we arrived in London where we spent ten days.

We made our way across to the Continent *via* Holland, Cologne and Munich, and finally reached Vienna on October 11, 1924. Here we found

ideal conditions for special study, and immediately settled down to work in the Neumann Ohren Klinik as voluntary assistants, under Professor Ruttin, Docent Beck, and Assistants Fremel and Hofman. We were fortunate in having met Assistants Fremel and Haslinger before we sailed from home, while they were in Montreal on their way to attend an Oto-Laryngological meeting in the States. With them we made ward rounds daily at 8 a.m., and with the Professor visited the ninety-two beds available in this clinic. At 9 a.m. we went to the out-door department, and there saw between thirty or forty more cases of ear disease, showing all manner of clinical types. At first we had difficulty with the language, but by means of regular German lessons, and with the aid of Doctor Fremel, we were soon able to make ourselves understood. Once the patients get to know their doctor, they are not satisfied with any one else, and we found them very appreciative of all efforts to help them. At 11 o'clock we went to the operating room, and there witnessed the operations. The diagnostic ability and surgical dexterity of all the senior group of teachers was a striking feature.

In the afternoon we took the regular courses given under the auspices of the American Medical Association of Vienna, in the various clinics. The nose and throat work was all conducted in the Hajek Klinik, where similar facilities prevailed for teaching as in the Neumann Klinik. An extramural clinic in the Poliklinik was conducted by Professor Alexander. He had charge of the ear department, while Professor Marschik directed the nose and throat work.

Besides the clinical work, there was always an abundance of fresh cadaver material available for anatomical, pathological or operative study. The whole scheme of the work in Vienna is very well arranged and the facility with which courses can be obtained in practically all departments of medicine and surgery is a striking feature. We remained there five months, with the exception of a few days spent in Italy and the south of France during the Christmas holidays when all teaching ceases.

The character of the work in Vienna which attracted our attention particularly was the refinement of diagnosis in aural surgery, and the great care in the treatment of each case. During our stay, we saw a great variety of conditions, ranging from furunculosis of the external canal to the more complicated cases of labyrinthitis. The recognition of the various stages of serous and purulent labyrinthitis and the indications for a labyrinthotomy or some less radical treatment was very definite.

We were very fortunate in seeing Professor Neumann perform his classical labyrinth operation opening into the vestibule by joining the limbs of the external and posterior semicircular canals, after exposing the dura, medial to the sinus; thus securing complete recovery.

Another interesting operation witnessed by us was that of jugular ligation. According to Professor Alexander's teaching, a preliminary ligation of the jugular vein should be done in all cases of strongly suspected lateral sinus thrombosis. His practice is based on the principle that it is safer to operate first in the sterile field and then subsequently in the infected area. However, we saw one case in the Poliklinik, in which exactly an hour was taken in exposing and ligating the jugular vein, only to find the wall of the lateral sinus normal on opening the mastoid. Neumann's method of exposing the lateral sinus first, appeared to us more reasonable. If the sinus wall was discoloured or pulsations could not be felt, a puncture was made with a large needle. If blood did not flow into the syringe the jugular vein was tied off at once, and all of the clot removed from the sinus, until free bleeding occurred from both ends. If on the other hand the blood flowed freely on puncture the ligation of the jugular was unnecessary.

A branch of the work which claimed our attention was the plastic surgery of the face; the methods shown were all modelled after the teachings of Joseph of Berlin. The different ways of building up fallen bridges by autogenous bone and cartilaginous grafts as well as by the use of ivory transplants and animal bone were shown. Various procedures were carried out for hump and tip deformities and ably demonstrated by Assistant Fruwald.

Our second clinical visit was to Professor Nager in Zurich, Switzerland. Here we received a very cordial welcome and were greatly interested in his well organized department with its excellent facilities for hospital and dispensary work. Much of our time was spent watching him operate. His wonderful microscopic slides of the temporal bone were quite the finest we have seen.

While there, we were fortunate in seeing the means adopted by him for improving the distressing results of atrophic rhinitis. He "shifted" the lower lateral nasal wall towards

the mid line by cutting through the maxilla just inside the nostril and so opening directly into the antrum. The wide nasal cavities were narrowed and the lateral nasal wall on each side is held in place by gauze packing, until union occurs.

Another operation demonstrated by Professor Nager to us was the opening into the pituitary fossa by way of the hard palate and sphenoidal sinuses. This operation is indicated in cysts and tumours of the pituitary especially in those situated low down. The approach is made through a T-shaped incision in the hard palate, the mucous membrane is reflected and the bone cut away. The posterior part of the septum, chiefly vomer at this point, is removed submucously, bringing the rostrum of the sphenoid into view. The sphenoidal sinuses are opened up and the septum between the two removed. As the posterior part of the roof of the sphenoidal sinuses forms the floor of the pituitary fossa a direct view of the gland is obtained. This route is only two to three inches long as compared with the transeptal method of at least four inches. The great advantage of this operation is that the nasal fossæ are left intact, and everything is done submucously.

Leaving Zurich, we called in at Utrecht, Holland, where we met Professor Magnus and Doctor de Kleijn, both of whom did much to make our visit pleasant and profitable. We also received many courtesies from Doctor Versteegh (Doctor de Kkeijn's associate) while there and saw for the first time the electrically lighted operating microscope. Experimental physiology as regards the labyrinth, cerebellum and cerebrum was the main feature of the work, and some of the results obtained by them are very remarkable. In the not too distant future, we may hope for an interpretation of many unsolved problems in otology, from this able group of investigators.

Our next visit of importance was London, where we spent three months in all, at two different periods. Post-graduate teaching there has not yet reached the high standards found in other centres, although the Fellowship of Medicine, in Wimpole Street, is an organized association where information can be obtained and courses are posted. However, in London they are striving to make their teaching more efficient and it is to be hoped that in the near future graduate students will not have to cross to the Continent for further training.

In Edinburgh we were fortunate in seeing Doctor Fraser perform a radical mastoid operation with skin graft. On the same day he did a radical operation without a graft, so that the after-treatment of both could be followed. In the subsequent removal of the pack the skin-grafted case showed less distress than the non-grafted one. In the operation for laryngo-fissure for malignant disease in the neighbourhood of the vocal cords, the laryngeal cavity was tightly packed for twenty-four hours to lessen the possibility of secondary hæmorrhage. Elsewhere, other surgeons we saw, closed the larynx immediately, without packing of any kind.

We concluded our planned trip by visiting Bordeaux, France, and there taking the annual course in oto-laryngology given by Professors Moure and Portmann. The work we saw there proved very instructive as were the discussions on the diagnosis, surgery and treatment of outstanding problems in oto-laryngology. Thirty-three post-graduate students from all over the world assembled for this course of two weeks, which was delivered in French. Besides the didactic lectures a great part of the time was taken up with practical work on the cadaver.

Professor Portmann during July and August of each year delivers a special course in English of five weeks' duration, and from knowledge of conditions in Europe, it is to be highly recommended to anyone practising nose, throat and ear, surgery and also as a good post-graduate course for an experienced student.

In conclusion, our observations may be summarized as follows:

Vienna is the logical centre for really effective post-graduate work in oto-laryngology. Bordeaux is a centre where a short period may be spent with profit especially during the special summer course in English for five weeks. In another group may be placed Zurich, London, Edinburgh and Utrecht as centres worthy of a visit but not for prolonged study unless for some special work such as Utrecht offers in the physiological branch of otology.

Obituaries

Thomas J. W. Burgess, M.D., F.R.C.S., for many years superintendent of the Verdun Protestant Hospital for the Insane, and Professor of Mental Diseases in McGill University, died on January 18, 1925. He was born in Toronto in 1849, educated at Upper Canada College, and entered upon the study of medicine at Toronto, where he graduated in 1870 winning the first university silver medal and the Starr gold medal. After graduation he acted as clinical assistant in the Toronto Lunatic Asylum until he received the appointment of surgeon to the North America Boundary Commission. On the completion of the survey he was tendered the thanks of H. M. Government for his efficient services. Mental diseases however early attracted his attention, and shortly after he finished his service on the Boundary Commission, he accepted the position of assistant physician to the London Insane Asylum. After two years service there he was offered the appointment of assistant superintendent at the Hamilton Insane Asylum; these positions were filled with much credit to himself. In 1890, the erection of the Verdun Protestant Hospital for the Insane was completed and he was chosen to be its first superintendent; later on, he was appointed as Professor of Mental Diseases in the Faculty of Medicine at McGill University. These positions he continued to fill with much honour until 1923 when he resigned on account of ill health and advanced age.

During his trip across the continent in connection with the Boundary Commission he devoted his spare hours to the study of the flora of the various territories he passed through, and during the early years of his professional life wrote numerous essays on botanical subjects. "A botanical holiday in Nova Scotia" and "The Lake Erie shore as a botanizing ground" were perhaps the most interesting of these. His chief literary effort however was his contribution to the "Institutional care of the insane in the United States and Canada," a work in four volumes.

He was also author of "An Historical Sketch of Canadian Institutions for the Insane." In the preparation of these sketches he delved deeply into old records which described the treatment of insanity among the Indian tribes and the early settlers in the 17th century, quoting from many of the early writers. Among other facts he gave a most interesting account of the founding of St. Jean de Dieu Hospital in 1823. One, Monsieur Gamelin adopted in pity an idiot child in whom he became much interested; Madame Gamelin after her husband's death devoted the remainder of her life to the care of this child, and other insane who were brought to her and thus founded the order of the Sisters of Providence. Their original home, *La Maison Jaune* was the beginning of the magnificent hospital which still remains under the care of the same Sisterhood. In the several articles written by Dr. Burgess, the efforts which have been made to ameliorate the treatment of the insane in this province as well as the difficulties and oppositions encountered, are graphically described.

The outstanding characteristic of Dr. Burgess was his humanity. "As little restraint as practicable; none if possible" was his announced policy, when he became superintendent of Verdun thirty-six years ago. His patients were always his first consideration. Fifteen years ago when Dr. James Douglas of New York offered him a donation of money, with the option of expending it on an amusement hall for the patients or for a nurses' home, Dr. Burgess chose the amusement hall; patients first; the nurses' home must follow in time.

A living testimony to Dr. Burgess' sterling character is the loyalty of his assistants to their old chief. He was strict without being severe, and while exacting from them their full share of duties, he made them take responsibility, and thus trained them for their future work, so that in later years when they had obtained other positions, they retained their love and respect for him, and gladly sought his advice in dealing with difficult problems.

Dr. Burgess disliked notoriety. He was requested to give expert testimony in the Thaw proceedings in Coaticook, but declined although offered a large fee, because he disapproved strongly of the conflicting testimony of alienists in this notorious case. We may also add that so high was the general opinion of Dr. Burgess not only as an alienist but as a man of integrity, that in all the legal cases in which he was engaged, his testimony was accepted without questioning. Dr. Burgess was an active member of the Pen and Pencil Club, a member of the Author's Club of London, England, and stood high in Masonic circles. His chief hobbies were golf and botanical studies. During the last three years of his life after more than half a century of self denying labour he enjoyed a comfortable and well earned rest. He is survived by his widow, daughter of the Late Lieut.-Col. Alexander MacPherson of Whitby, Ont., and three daughters.

A. G. MORPHY

Sir Richard Douglas Powell, Bt., K.C.V.O., died in London on December 15th in his 84th year. His death removes a great figure in the medical world of England. The son of Captain Douglas Scott Powell of the 23rd Welsh Fusileers he entered on the study of medicine in University College Hospital, where he graduated in honours and was afterwards appointed as house physician and resident obstetrical assistant. In 1867 he was elected assistant physician to the Hospital for Consumptives, Brompton, and a few years later became full physician. In 1882 he was appointed physician to the Middlesex Hospital and lecturer on the practice of medicine in its school. He attained a considerable measure of success as a consulting physician at an early stage of his career due in great measure to painstaking clinical and pathological work which earned the respect of his confrères. He was a favourite pupil of Sir William Jenner, and on his recommendation received the appointment of physician to the Court of Queen Victoria. He passed the examination and became a member of the Royal College of Physicians in 1867, and a Fellow in 1873; later on he was appointed on the Council where he served for several years. Finally, he was elected to the Presidency, which he retained till 1910, when he was succeeded by Sir Thomas Barlow. His presidency was characterized by sound judgment and a courteous urbanity with which was combined strength of will and an impressive demeanour.

Sir Humphrey Rolleston, President of the Royal College of Physicians sends the following tribute to his predecessor's memory:—

"Sir Richard Douglas Powell who was successively elected President of the Medical (1891), the old Clinical (1899-1901), and the Royal Medical and Chirurgical Societies (1904-6), and of the Royal College of Physicians (1905-10, eminently maintained their dignity and advanced their prestige. During these years of official authority he played an active part in important changes which owed much to his enlightened and hearty coöperation—for example, the amalgamation of the seventeen separate societies with the Royal Medical and Chirurgical Society to form the Royal Society of Medi-

XUM

cine in 1907. The Association of Physicians of Great Britain and Ireland, of which, in 1907 he was the first president, took form under his hospitable guidance in Wimpole Street with the collaboration of Sir William Osler and Sir Wilmot Herringham. He was one of the last of the distinguished band of broad-minded physicians who were closely connected with Sir William Jenner, and preserved the ideals of medical practice while showing full sympathy with the progressive advances of science.

Preëminent above all these characteristics was his wonderful kindness of heart and his generosity. The weekly *Times* (December 31, 1925) publishes the following tribute to this side of his character from an old patient:—I recall his devoted attendance on a hopeless case many years ago, when he was at the height of his popularity and much overworked. Nevertheless he visited this case every week for many months, knowing that he could do nothing but ease pain and comfort the dying invalid and the lonely surviving relative. "Graceful and polished bearing" may describe the Court physician, but one at least cherishes a memory of that worn ascetic figure rushing up a long flight of stairs, standing calm and serene with his rare smile by the sick bed as if he had not another patient in the world, and then, as soon as the door closed, hurrying off to another case. It was the custom of this patient, who was by no means wealthy, to have a cheque ready for "Dr. Powell," which was handed to him as he left the house. After many weeks he stopped one day on the doorstep and said to the relative, "Don't give me any more cheques, I only burn them"; and this, indeed, was what he had done. A.D.B.

Dr. Neville James Lindsay, one of Calgary's most esteemed citizens, died on December 17, 1925, at the ripe age of eighty-one years. He was the last surviving of those members of the medical profession who settled in Calgary when the city was merely a small hamlet, forty-two years ago.

Dr. Lindsay was born in Westminster township, near London, Ontario, in 1845. His later education was obtained at McGill University and Trinity College, Toronto, and he graduated at the latter institution in 1874. Following this event, he spent some time in New York at the Manhattan Eye, Ear and Throat Hospital. On his return he settled in Watford, Ontario, where he practised for eight years, coming west to Calgary in 1883, about the tme of the advent of the first Canadian Transcontinental Railroad. He was one of the first physicians to settle here and may truly be called a pioneer. He was a member of Calgary's first Town Council. For many years he looked after the welfare of the Sarcee, Blackfoot and Stoney tribes of Indians in this neighborhood.

When the Canadian Pacific Railway was completed he was appointed Divisional Surgeon. He was also Medical Officer to the Royal Northwest Mounted Police.

In the Klondyke rush of 1898, Dr. Lindsay, although in his fifty-fourth year, made the journey to the Yukon through the White Horse Pass. He made two subsequent trips to the Yukon, staking claims on the Upper Yukon River and in Northern British Columbia.

He was known as the father of Masonry in Alberta and held the offices of Honorary Past Grand Master of the Grand Lodge of Alberta A. F. & A. M., and Grand Treasurer of the Grand Lodge of Alberta, for several years.

He is survived by hs wife, one daughter and three sons, one of whom, E. A. Lindsay, F.R.C.S.. (Eng.) resides in London, England. F. E. LEARMONTH

Dr. Thomas Walker died in his eighty-sixth year at his home in St. John on Christmas morning. Dr. Walker was born in Hampton, Kings County on March 20, 1840. He was the son of Rev. Wm. Williams Walker and Ann Woodward Walker. He was a descendant on the paternal side of Elizabeth Yates, a sister of the famous Pendrall brothers who were instrumental in saving the life of King Charles, after the battle of Worcester. The king was so grateful for this service that he pensioned the heirs of his benefactors for all time. This pension, Dr. Walker was receiving up to the time of his death.

Dr. Walker's early education began in the Kings County Grammar School; subsequently he took his B. A. degree at King's College at Fredericton; he studied medicine at the University of Edinburgh, graduating in 1863; afterwards taking the license of the Royal Colleges of Surgeons of England and Scotland in the same year. Dr. Walker was a Mason, a member of St. George's Society and of the Knights of Pythias: He was also past President of the Saint John Medical Society, past President of the Council of Physicians and Surgeons of New Brunswick, past Chairman of the Commission of the General Public Hospital. He served for a number of years as surgeon major of the 62nd regiment. The local press in referring to his death, spoke of him as the "beloved physician."

Dr. John Howard Slayter, died at his home at Grand Pre on the eighth of January. He was a son of the late Dr. William B. Slayter who, for many years, was one of the leading practitioners of Halifax. Dr. Howard Slayter graduated at Edinburgh in 1888, and for some time thereafter practised in Chicago. He returned to Halifax during his father's last illness, and took over his father's practice. After a few years he removed to England, where he was when the war broke out. He immediately accepted military duty, serving in various capacities including a term with the McGill General Hospital. When the war terminated he returned to Nova Scotia and purchased a property near Grand Pre, where he devoted himself almost entirely to non-professional pursuits. Dr. Slayter was a man of sterling character, and many accomplishments, a delightful companion, and much loved by a large circle of friends.

Dr. J. Bryce McMurrich physician of the C.P.R. liner Melita died suddenly on December the 28th. Dr. McMurrich had been threatened for some years with the serious results which might follow diabetes, hypertension and a pyelitis, but had bravely preferred to continue at work though knowing that some such sudden accident as has just happened was to be looked for. Dr. McMurrich graduated from Trinity Medical School faculty in 1896, he practiced medicine in Toronto and in Bothwell, Ontario, being mayor of the latter town for some years. During the great war he saw service with the Canadian Army Corps, and narrowly escaped death at the bombing of the Etaples Hospital. Immediately after the war he was for some years superintendent of the Hospital of St. Anne de Bellevue. After the winding up of many of the military hospitals he was appointed to the medical service of the C. P. R., and proved a popular and efficient medical officer on most of their large liners.

Dr. F. J. Barrick, M.R.C.S. England, and L.R.C.P. London and Edinburgh, died in Toronto early in December. Dr. Barrick took his degree in medicine at Victoria University in 1866 and graduated subsequently at the Toronto Medical School. In his early days he had been a demonstrator of anatomy at the Rolph School of Medicine, and subsequently an examiner in the medical faculty at Victoria University, he was one of the early treasurers of the Ontario Medical Association. Largely as a result of his interest in the prevention of tuberculosis, he was elected president of the American International Congress of Tuberculosis in 1903. He delivered the presidential address at the meeting of this society in 1914, when the meeting took place under the

auspices of the St. Louis World's Fair. For forty three years Dr. Barrick lived and practiced in Toronto but in 1909 he removed from this city to take up special work in Saskatchewan; he returned to Toronto in his 82nd year.

Dr. Francis Fraser Bond, formerly of Toronto, died in Dctroit early in December in his 35th year. A graduate of the University of Toronto, Dr. Bond had been practising in Detroit for the past five years.

Dr. Samuel A. Foote of Rosseau, Muskoka, died in Toronto on December the 16th in his 60th year. Graduating from the University of Toronto he had practiced in Rosseau for twenty-five years.

Dr. Hiram Wigle one of the old practitioners of the Bruce Peninsula died in Wiarton on January the 4th. Dr. Wigle graduated from McGill University in 1875 and had practiced in Wiarton for over forty years.

Dr. J. C. C. Grasett died in Simcoe on December the 14th in his 64th year. Dr. Grasett was a graduate of Trinity University in 1887, and had practiced in Simcoe for many years, and where he had acted as medical officer of health for thirty-five years.

Dr. G. O. Baxter died at his home in Saint John early in December. He was one of the older physicians and had enjoyed a large practice in the city and county for a number of years.

Dr. R. S. Minnes died in Ottawa on December the 27th in his 56 year. Dr. Minnes graduated from Queen's University in 1894 and after a post-graduate course in London and Birmingham he began practice in Ottawa in 1898, and was well known throughout the Ottawa Valley as a keen and successful opthalmologist.

Dr. James Third died in Kingston on December the 17th after a long illness. Dr. Third was born 60 years ago at Campbellford and graduated from the University of Toronto in 1891, and was for five years superintendent of the Kingston General Hospital. He was professor of medicine at Queen's University for fourteen years retiring in 1919 owing to failing health. A note of the activities of Dr. Third will appear in a later issue.

Dr. Jonathan McCully an outstanding figure in the history of south Kent died at Cedar Springs on December the 22nd in his 92nd year. A graduate in medicine from Victoria University in 1866, he had practiced medicine for over 50 years. Actively interested in local affairs as well as in medicine Dr. McCully had served as Councillor, Deputy Reeve and Reeve on Harwich Township Council.

Dr. R. Harcourt Anderson, died at the Montreal General Hospital, after a long illness, at the age of fifty-five years. A veteran of the Great War Dr. Anderson saw service in France and Russia as an officer in the Royal Army Medical Corps. He was a graduate of the University of Edinburgh. For the last two years he had been convalescing at the Ste. Anne de Bellevue Hospital, from trouble arising from his overseas service. He had no relatives in Montreal.

Thallium Acetate in Tinea Tonsurans.—C. Felugo (*Rinascenza med.*, October 15th, 1925, p. 470), states that Fiocco was the first to make a systematic use of thallium acetate by mouth in the treatment of ringworm of the scalp owing to the alopecia which it produces. At the suggestion of Professor Renaudi, who had seen the good results obtained by Fiocco, Felugo employed this drug in the treatment of 40 children with trichophytosis of the scalp at the dermatological department of the Civil Hospital at Genoa. The following technique was employed. After the patient had been carefully weighed, the urine tested, and examination had shown that no active disease was present, 8 to 9 mg. of thallium acetate per kilo of body weight was given in a little sugar and water. The results were as follows: Complete alopecia followed in 27 cases; 5 children failed to attend the hospital when it was noticed that their hair was falling out; in 6 the alopecia was only partial; and in 2 the method was a complete failure. None of the cases showed a relapse, and as a general rule the drug was well tolerated. Only 4 patients developed severe abdominal pain and diarrhœa, and 7 had pain in the knees, but the symptoms did not last longer than from one to three days. Repeated examination of the urine showed nothing abnormal except phosphaturia in 6 cases. The loss of hair began on the average ten to fifteen days after administration of the thallium, and was complete on the twenty-fifth day. During this period folliculitis of the scalp often developed, but rapidly subsided under treatment by sulphur or mercury ointment. Felugo concludes that thallium acetate may safely be used in the treatment of ringworm of the scalp and all other diseases in which depilation is necessary. In view of the simplicity of the application and its almost absolute harmlessness it should, he suggests, be the method of choice in the out-of-the-way places where x-ray treatment is impossible.—*Brit. Med. Jour.*, Dec. 16, 1925.

XUM

Medical News from the British Empire

GREAT BRITAIN

From our London Correspondent, January 9, 1926.

For the last two or three months a great deal of public interest has centered round the three following subjects: "The case of Dr. Axham"; "Should doctors write to the Press" and the foundation of the "New Health Society."

The case of Dr. Axham has been discussed in *The Times, The Spectator* and many other of the weekly and daily publications. Possibly in some quarters for journalistic purposes the agitation has been fomented, for not one person in a hundred who had heard of Herbert Barker had also heard of his colleague, Axham.

The case in itself from the point of view of medical "law" is perfectly simple: Mr. Axham was found guilty of "covering" in that he had administered anæsthetics for Mr. Herbert Barker, the osteopathist, an unqualified practitioner. Mr. Axham whose qualifications were F.R.C.S. and F.R.C.P.E., was warned by the General Medical Council that his conduct would, if persisted in, lead to his name being removed from the register of qualified practitioners kept by the Council He persisted in his line of conduct, so that in 1911 his name was erased from the register. For some ten years longer Mr. Axham continued in his illegal medical liaison, and then retired from practice. In the meantime both the surgical and medical colleges of which he was a fellow, cancelled their diplomas; so that finally Mr. Axham was not in possession of any registrable qualification.

Recently some of his friends have been advising him to apply to the General Medical Council to have his name replaced there. Even Lord Dawson of Penn and *The Times* have advocated "clemency" in dealing with Mr. Axham.

The lay interest in the case has been very great. Mr. F. B. Shaw, the dramatist has, as usual, rushed in with a clever letter to the press in which he held the General Medical Council up to ridicule. The public, invited to be the judges and critics of the Medical Council, are stimulated to commiserate an old man brutally treated by an autocratic "Trade Union" acting under "obsolete rules."

Probably nine tenths of the public do not know the true facts of the controversy. Mr. Axham is represented as a perfect martyr so anxious to relieve human suffering that he was literally driven to give chloroform for Sir Herbert Barker; his sensitive soul was grieved beyond words to see so much pain, which the "regular" practitioners could not remove. The Medical Council has been represented as a tyrannical and unsympathetic assemblage of pedants. The confusion, misrepresentation, and misplaced sympathy became so widespread, that Mr. Notman King, the registrar of the General Medical Council, had to write to *The Times* to publish the facts. The public will not take the trouble to understand that the General Medical Council registers a man's qualifications to practice, and if he has none there are none to register. The Council does not enquire by what process or for what reason they were taken away from him.

So prejudiced against the profession have some of the editors and publicists become that Dr. Graham Little, a member of the Council, had to write to *The Times* explaining that unless Mr. Axham's diplomas, or one of them, could be restored to him, the Council could not under statute law replace his name on the register. Since this letter appeared there has been a little less public weeping over the terrible case of this "old and badly dealt with man." He has plenty of friends: a titled K. C. has intimated his willingness to defend Mr. Axham without fee if he will take his case "to a higher court."

The public or rather the press has become very concerned about whether doctors "ought to write for the papers." That medical men are at the present time writing and lecturing on medical topics more frequently than ever before is undoubtedly true. Sir William Arbuthnot Lane, Sir Berkeley Moyniham, Sir Ronald Ross, Professor Leonard Hill, Dr. Leonard Williams and Dr. Elizabeth Sloan Chesser all write to lay journals concerning matters affecting personal or public health. But none of those advertise themselves, they have no need to, they already occupy their recognized positions in the profession. Other writers have not been so careful or ethically correct. The Medical Council recently removed the names of several practitioners who in their writings have indicated that they are in possession of a cure or remedy for some disease or other. Many hygienists think while the penalty for advertising one's professional ability, directly or indirectly, ought still to be strictly enforced, that the public are nevertheless fully entitled to the latest knowledge regarding anything affecting the national health. If those best qualified to instruct the public may not do so, then incorrect versions of the truth will be immediately provided for them by the lay editors. There is a growing feeling that it is perfectly possible to overdo this professional reticence, and make it difficult for medical men to instruct the public in the latest results of researches in scientific medicine, the knowledge of which would certainly be highly beneficial. In this spirit the "New Health Society" has been founded by Sir W. Arbuthnot Lane and been blessed by the Earl of Oxford and Asquith.

The aims and objects of the Society are, inter alia,—

"To spread the knowledge of the newer discoveries of science which concern the preservation of health and the prevention of disease. To teach the advantages of right food, fresh air, sunshine and exercise through the medium of newspapers, pamphlets, books, wireless (telephony) and lectures." *The Times* calls the object of this Society, "information without advertisement"; and no one can for a moment doubt that the founders of this New Society are actuated by a disinterested altruism.

D. FRASER HARRIS

News Items

GENERAL

INTER-STATE POST GRADUATE FOREIGN CLINIC ASSEMBLIES. 1926

The 1926 foreign clinical assemblies given under the direction of the Inter-State Post Graduate Assembly of North America will cover a territory including the chief university cities of Italy, Switzerland, Germany, Czecho-Slovakia, Holland and Belgium. The physicians are going abroad as the result of invitations extended, through this Association, by the leading medical uni-

versities and institutions of the countries to be visited.

The members of the party will sail from New York on April 28th, a few days after the meeting of the American Medical Association at Dallas, Texas, thus, giving the physicians of the party plenty of time to attend that meeting. The large first-class cruising steamer, the "Araguaya" of the Royal Mail Steam Packet Line has been chartered to take the party abroad. They will land at Cherbourg and will go at once to Paris where the clinical assemblies start.

Dr. Carl Beck of Chicago, the general secretary for the foreign assemblies is now in Europe completing the arrangements. The cities in which the clinics will be held are as follows: Paris, Rome, Florence, Padua, Milan, Berne, Zurich, Munich, Vienna, Prague, Berlin, Amsterdam, The Hague, Utrecht, Leyden and Brussels. There will be extension assemblies held in many other principal medical centres of Europe following the main assemblies

The assemblies are open to members of the profession, who are in good standing in their State or Provincial Society with no restriction to territory. This invitation is understood to be extended to the entire medical profession of North America. Admittance to the clinics and privileges of the tour will be protected by the issuing of an admittance ticket or card. This rule will be strictly enforced in order to protect the Association in its membership requirements, which is, that a physician must be in good standing in his State or Provincial Society. We will not be responsible or admit physicians to privileges unless they are members of the group.

The members of the party will be limited to a number that can be accommodated comfortably in both the clinics and hotels. After careful consideration and consultation with the transportation department and the foreign clinics, this number has been fixed at five hundred, which includes members of the physicians' families. Necessarily this will limit the number of physicians to around three hundred.

It is necessary in order to hold space for the assemblies to send to the office of the Managing-Director, W. B. Peck, Freeport, Illinois, the sum of $65.0 per person. If for any reason the applicant for space decides that he cannot attend the assemblies, the money will be refunded immediately, if this demand is made as early as six weeks before sailing time. A booklet of information pertaining to the assemblies and prices for same may be secured free of charge by writing the Managing-Director's office

Ladies Entertainment: Besides the extensive sightseeing and travel features, arrangements are being made for a ladies' entertainment committee in each of the clinic cities. The committees will be composed of the wives of the clinicians and prominent citizens.

The officers of the assemblies are: Dr. Charles H. Mayo, Chief Executive and General Chairman, Rochester, Minn. Dr. Carl Beck, General Secretary, Chicago, Ill. Dr. William B. Peck, Managing-Director, Freeport, Ill. Mr. Reeve Chipman, Manager of Transportation, Boston, Mass.

A second section of the assemblies for a limited number will be conducted during the summer months for those who are unable to take advantage of the April sailing. The members of the party will leave New York S.S. "Pittsburgh" on June 19th, return sailing, August 13th from Antwerp S. S. "Zeeland".

NOVA SCOTIA

Dr. Robert W. Kenney, of Halifax, has been sucessful in passing the primary examination for the fellowship of the Royal College of Surgeons, London. Dr. Kenney had a brilliant career at Dalhousie, where he won the University medal in medicine on his graduation in 1924, and his friends are greatly pleased to learn of his latest success. He is a son of Mr. W. W. Kenney, Superintendent of the Victoria General Hospital.

Halifax friends have learned with great satisfaction that Dr. W. J. McNally, who graduated in medicine at Dalhousie in 1922 and has since been pursuing studies at Montreal and Utrecht, has been awarded the diploma in laryngology and otology of the Royal College of Surgeons, London. It is understood that Dr. McNally is the first Canadian to secure this distinction.

Dr. M. D. Morrison, medical officer of the Workmen's Compensation Board, whose interest in historical matters is well known, recently read a delightful paper before the Nova Scotia Historical Society, in which he dealt with the migration of a large number of Scots from the neighborhood of St. Ann's, Victoria County, to New Zealand some sixty-five years ago.

The autumn meeting of the recently organized Western Nova Scotia Medical Society was held at Yarmouth on the third of November, under the presidency of Dr. C. A. Webster. It was decided that the society shall hereafter hold three regular meetings annually. Dr. E. V. Hogan, of Halifax, was the principal speaker. He dealt with surgical technique and procedure, basing his remarks upon the experience of twenty-five years on the surgical staff of the Victoria General Hospital, and giving particular attention to differential diagnosis and operative treament in acute abdominal conditions. The paper was discussed by Drs. Campbell, Webster, Farrish, Fuller, LeBlanc, Williamson and Melanson, and after Dr. Hogan replied he was tendered a hearty vote of thanks. Then followed a paper by Dr. C. J. Fox, of Pubnico, who will celebrate his jubilee as a practitioner in a few months This paper was entitled "Some Early Professional Recollections," and was thoroughly enjoyed. Dr. Fox, also, was tendered a hearty vote of thanks. Dr. Hogan, as president of the Medical Society of Nova Scotia, felicitated the new organization on the progress it has made and assured it the warm support of the parent society.

The Department of the Public Health announces an unusual prevalence of diphtheria and scarlet fever in widely separated localities. Most of the cases of both diseases are reported to be of mild type. The vital statistics for the month of August record, 1018 births and 346 deaths, as compared with 1048 births and 494 deaths in August, 1924. The infant mortality rate for August, 1925, was 51.1; for August, 1924, 104.9. The tuberculosis death rate for the month under review was the lowest for many months, and the indications are that this rate for the current year will be lower than any yet recorded. In a recent Bulletin of the Department, reference is made to the general improvement in health conditions during recent years, and tables are presented which show that the greatest gain has been made in countries where public health nurses have been at work for some years.

Mr. George E. Calkin, an old and greatly esteemed resident of Kentville, has presented that town with an extensive tract of land, situated near the Nova Scotia Sanatorium and commanding a beautiful view, for the purposes of a hospital. The gift includes six dwelling houses, one of which is available for immediate use and could be arranged to accommodate twelve patients. The

XUM

gift has been accepted by the town and a committee has been appointed to develop a suitable hospital scheme.. It has been suggested that the dwelling house be adapted for temporary use pending the erection of a hospital building, and later utilized as a nurses' residence.

The stock of radium at the Victoria General Hospital, Halifax, has been increased by the recent purchase of 200 milligrams. Half of this amount has been purchased by the hospital and half by the Halifax Dispensary, but all is in the care of and at the disposal of the hospital for treatment purposes.

All those who know of the tremendous burden which has been carried for years by Dr. A. F. Miller, medical superintendent of the Nova Scotia Sanatorium at Kentville, and who have marvelled at his ability to maintain so keen an interest in the clinical work of that large institution while engrossed in the administrative detail which has fallen to him, will unite in the hope that a recent organization of the staff will afford him some of the relief he so richly deserves. Mr. E. H. Munro, who was for some time associated with Dr. Miller as his chief engineer, and who showed such excellent executive ability that the people of Kentville took him to be their town manager, has returned to the Sanatorium in the capacity of business manager. As Mr. Munro is already familiar with much of the detail of institutional management, it is felt that he will prove a valuable colleague to Dr. Miller, and that the new arrangement will give the good doctor much more time for the direction of the clinical work for which he is admirably qualified.

A meeting of the Halifax Branch of the Medical Society of Nova Scotia, held on December 16th, was rendered notable as it marked the initiation in Halifax of the scheme for extra-mural post graduate instruction of the Canadian Medical Association. As at all other meetings of the present session, there was a large attendance. Dr. John Stewart presented a number of photographs and skiagrams which he had just received from his friend Sir George T. Beatson, of Glasgow, which were of much interest because of the demonstration of the results of operations performed by Lister forty years ago. Dr. Stewart and Sir George were fellow students at Edinburgh, and both were house surgeons under Lister. In 1885, Lister operated on a man, at King's College Hospital, for multiple tuberculous joint lesions. At the first operation the elbow joint was resected and the right middle finger amputated, while a few weeks later the left knee joint was resected and the left ring finger amputated. In the operation on the knee the patella was removed and the ends of femur, tibia and fibula were united by a single silver wire suture. This man was recently admitted to the Cancer Hospital, Glasgow, for a malignant tumour of the eye lid, and Sir George was thus able to get the photographs and skiagrams. These showed splendid results from Lister's operations, which had enabled the man to continue his work as a cattle drover during all the intervening years. There has been little restriction in the movements of the elbow, while the knee has remained in a position of complete extension with solid union. The silver wire suture is shown intact in the skiagram. Following this presentation, Dr. Routley, the general secretary of the Canadian Medical Association, was heard with much pleasure as he described the activities of the Association and outlined the plan for extra-mural post graduate instruction. Dr. J. Appleton Nutter, of Montreal, was then introduced as the first lecturer under the scheme which Dr. Routley had outlined. In discussing "Paralytic Deformities, especially in Childhood," which he illustrated with lantern slides, Dr. Nutter held the attention of the meeting throughout his address, which was delivered admirably and was most instructive. He first dealt with injuries to the nervous structures which occasion the more usual deformities, and explained the need for keeping this damage in mind when considering treatment. The opportunites for medical assistance in the earlier stages, during the period of convalescence and in the chronic stage were very clearly presented, and the importance of conserving the functional activity of muscles and of proper muscle training was emphasized. Consideration was also given to the value of appliances for support, and to the need for judicious attention to anatomical and physiological details in their selection. In respect of operative procedures, Dr. Nutter pointed out the need for thorough investigation and a complete understanding of the consequences before any interference is attempted. The address was of a most practical nature throughout, and very happily presented. The appreciation of the Society was voiced by Drs. Weatherbe, Miller, and the president, Dr. Little.

NEW BRUNSWICK

The Fredericton city council has agreed to guarantee an issue of bonds by the board of trustees of the Victoria Public Hospital, not exceeding $10,000, to establish an isolation building.

The New Brunswick government has appointed Dr. W. W. White to succeed Dr. Walker on the council of the College of Physicians and Surgeons of New Brunswick.

Dr. R. A. Hughes of Moncton, was recently tendered a banquet by his confreres in the medical profession prior to his removal to Saint John where he will continue the practice of his specialty in ear, eye, nose and throat work.

In furtherance of an effort to familiarize the lay public with advances in medicine and to accentuate the advantage of early recourse to medical skill in case of disease, several educational lectures have recently been given at various points in New Brunswick by members of the College of Physicians and Surgeons. On January 12, Dr. J. M. Barry, of Saint John, spoke to the Associated Catholic Men's League in Saint John on diabetes with special reference to the value and use of insulin. Earlier in the month, Dr. S. H. McDonald, spoke to one of the larger Catholic men's societies on various medical topics, emphasizing pre-cancerous conditions and the significance of early diagnosis.

In his report to the Society for the prevention of Tuberculosis, Dr. H. A. Farris, Superintendent of the Saint John County Hospital, reported that there had been a decided falling off in the number of cases of tuberculosis in the city of Saint John. This decrease was most marked in children. He attributed this result to the active work of the nurses of the Society and also to the work of the County Hospital.

On January 12, Dr. H. L. Abramson, Provincial Pathologist, appeared before the Fredericton Medical Society at the monthly meeting, and discussed several public health problems.

Dr. W. W. White lectured before the Men's Club of Saint John's Stone Church, December 17, on "Sur-

gery Ancient and Modern.'' Dr. White's remarks covered his reminiscences extending over a long practice of surgery. He contrasted the pre-antiseptic surgery difficulties with the facilities available to-day; facilities which assure a comparatively safe course in major surgical operations. Dr. White, always a brilliant speaker, is an able exponent of the place of medicine in our national life.

A. STANLEY KIRKLAND

QUEBEC

In order to clear up some misunderstanding among the clergy and others regarding the new Act making compulsory the keeping of vital statistics in the province, Dr. Alphonse Lessard, the Director of the Provincial Bureau of Health, states that this act has been framed for statistical purposes only and it does not cancel the articles of the civil code having reference to the keeping of the registers of the civil status. These will have to be kept in duplicate as heretofore. From January 1st in the present year, clergymen will not report the number of births and marriages and send the death certificates to the Provincial Health Service in Montreal, but they will as soon as possible after the end of each month, fill out and forward them forms supplied by the bureau, in the addressed envelope, marked ''Free''. The form for deaths has to be filled by the clergyman or by the informant, and the latter will afterwards have the medical part of the form filled and signed by the attending physician and return same duly completed to the clergyman. This procedure can easily be followed in cities, towns and villages, where doctors as a rule, have their offices at a short distance from the churches. For other places where there are no resident physicians, article 139 of the Act distributed to all clergymen states clearly what has to be done in case it is impossible to secure the required certificate from a physician. To facilitate matters as much as possible, forms of death certificates have been sent to all physicians with an explanatory letter advising them to destroy the old forms and use the new ones.

Dr. Auguste Pettit, of the Pasteur Institute, member of the Academy of Medicine of France and Secretary to the Biological Society of Paris, has been invited and has accepted the invitation to take charge of the direction of the tuberculosis research work to be carried on at the University of Montreal in connection with the Dominion-wide programme of tuberculosis research planned by the Research Council of Canada. The programme of tuberculosis research drawn up by the Research Council of Canada is a wide one, covering some years and takes in both human and bovine tuberculosis. The two centres for research will be the University of Montreal and the University of Toronto, where the work will be carried out in the Connaught Laboratories. Actual details of the programme of research work to be carried out at the University of Montreal will not be arranged until the arrival of Dr. Pettit. An announcement of importance in the treatment of tuberculosis is that 200 beds in the new hospital for incurables, which is being erected at Cartierville, are to be allotted for tuberculosis patients. It is understood that the University of Montreal is to have the medical and scientific direction of the new hospital, which is expected to be ready for occupation in from four to five months.

Concurrent with the decision of the Provincial Government to segregate from the ordinary insane, idiots and the feeble-minded, Orders-in-Council, have been passed by the Cabinet recently, authorizing the issue of $250,000 worth of bonds by the Baie St. Paul Hospital, and $550,000 by the Sisters of Charity operating Beauport Asylum, which bonds will be guaranteed as to interest and capital by the government. With this financial assistance the Sisters of Charity will start the erection of a wing to their present properties at Beauport, where provisions will be made to accommodate three hundred feeble-minded who are now cared for in some of the existing asylums or homes; they will be examined by mental experts, and classified into two groups: those who can be educated and those who are incurable.

The Hospital at Baie St. Paul has no reserve room exclusively for idiots of various types; the capacity of this asylum therefore will be doubled, thus providing accommodation for 700 cases. There are at present 350 patients in this institution. The increased space will allow those who are at present in other institutions under less suitable influences to be received and placed under special treatment. This move follows the decision arrived at by Hon. Athanase David, Provincial Secretary, to segregate the various types of the insane, and bring all under modern methods of treatment. This marks a new era in the handling of the insane in this province with a well devised effort to cure as far as possible those suffering from mental disease.

GEORGE HALL

MANITOBA

DEVELOPMENTS AT THE CHILDREN'S HOSPITAL OF WINNIPEG

At the annual meeting held on December 7th Dr. Frank McKinnon was elected President of the staff, Dr. E. H. Alexander, Vice-President, and Dr. O. J. Day, Secretary.

During the past year considerable progress has been made. The departments of the hospital have been reorganized and permanent chiefs-of-staff appointed; Dr. Rorke, chief of medical division; Dr. J. D. McEachern, chief of the surgical division; and Dr. McGillivray chief of the eye, ear, nose and throat division. Dr. Bruce Chown has been appointed pathologist, and new and completely equipped laboratories have been installed. Dr. Baldur Olson has organized a small indoor and large outdoor clinic for the investigation and treatment of tuberculosis in children. It is hoped that this will prove the beginning of some effective work along this line. Through the generosity of the Women's Institute a trained dietition has been made available for assisting in the after care of these children in the home.

Under Dr. Brereton a clinic has been organized for the investigation of the goitre problem.

Weekly ward rounds under the direction of the chiefs-of-staff take place every Monday morning at eleven. There has been a steady increase in the num-

XUM

ber of visitors each week, and it is hoped to make these rounds even more valuable to the outside medical man in the future. MITCHELL ROSS

MISERICORDIA HOSPITAL EXTENSION

The Sisters of Misericordia have plans under way for notable extensions to their hospital. With the opening of spring, construction will be started on a three storey wing to extend from the north end of the present hospital out to Maryland Street. The first floor of this wing will be taken up with administrative offices, x-ray laboratories, doctors' rooms, and quarters for the interne staff of the hospital. The main office entrance will face on Wolseley Avenue. The second floor will consist of semi-private and private rooms and also a number of private rooms with bath. The third floor will be entirely taken up by operating rooms. The plans call for two major operating rooms and a room for septic cases, two ear, nose and throat operating rooms, and an eye room. This building is to be completed during the present year. Work will also be started immediately on a nurses' home, plans for which are not yet fully decided upon. These extensions will greatly increase the capacity of the Misericordia and will place it in the fore front of well equipped hospitals in Western Canada.

Dr. N. J. Maclean read a paper entitled "Some Problems in the Surgery of the Intestines with Special Reference to the Two Stage Operation," at the thirty-fifth annual meeting of the Western Surgical Association which met at Wichita, Kansas, on December 18 and 19. Among others presenting papers were: Drs. James T. Case, R. C. Coffey, Donald C. Balfour, Carl Hedblom, Emil G. Beck, H. L. Kretchsmer, M. S. Henderson, Leonard Freeman, and Arthur E. Hertzler. Dr. R. E. Coffey of Portland, Oregon, was elected President and Dr. Maclean first Vice-President.

The admissions to the Winnipeg General Hospital for three days—Jan. 4th, 5th, and 6th, were 57, 57, 54 respectively—a total of 168 for the three days. This constituted a record for the General Hospital. Admissions have been particularly heavy in all the city institutions since the new year.

A special quartz glass window has been installed at Ninette Sanatorium. It permits patients to obtain during the winter the same benefits they obtain from outdoor sun baths in the summer. The Ninette Sanatorium is said to be the first on the North American continent to secure this equipment. Quartz glass is manufactured in Switzerland and is quite expensive; Dr. Stewart, the Superintendent, is therefore particularly pleased with the acquistion as the benefits to be derived from it are great.

The Misericordia Hospital has installed a basal metabolism apparatus in its laboratory during the present month.

Dr. J. Ramsay of Minneapolis was an interested visitor in the city in December. Dr. Ramsay is a specialist in pediatrics and came to Winnipeg to investigate conditions and methods at the Children's Hospital. A Children's Hospital is to be erected in St. Paul during the present year and he hopes to incorporate in it all that is best in those institutions which he has visited. Dr. Ramsay is a Canadian.

A committee of twelve members has been appointed to consider osteopathic legislation. The personnel of the committee is as follows: Appointed by the College of Physicians and Surgeons: Dr. W. G. Campbell, Dr. W. H. Secord, Dr. J. E. Coulter; Appointed by the Manitoba Medical Association: Dr. J. C. McMillan, Dr. J. S. Poole, Dr. D. G. Ross; Appointed by the Faculty of Medicine: Dr. E. W. Montgomery, Dr. Jas. McKenty, Dr. N. K. McIvor; Appointed by the Winnipeg Medical Society: Dr. E. J. Boardman, Dr. J. D. McEachern, Dr. H. H. Wadge.

The Winnipeg Medical Society offers a prize of $200.00 for the best essay on any subject in the science or art of medicine. The competition is open to graduates in medicine of not more than five years standing who have resided in Manitoba for the year prior to December 31, 1925. The essays are to be placed in the hands of the Secretary of the Society not later than April 30, 1926. No prize will be awarded by the Society if in the opinion of the judges sufficient merit is not manifested. A committee of five is to be appointed to make such additional regulations as may be considered necessary for the successful conduct of the competition. It is hoped that a large number of recent graduates will avail themselves of this opportunity to contribute something original and worth while to their chosen profession.

Dr. H. A. McFarlen has been appointed President of the Public School Board of Winnipeg for the present year. It is very commendable that a busy practitioner should be willing to assume so important a public position. It stamps Dr. McFarlen as a good citizen.

Dr. J. C. B. Grant, professor of Anatomy in the University of Manitoba, attended the convocation of the University of North Dakota at Grand Forks on Jan. 14th, where he delivered an address.

At the luncheon of the Winnipeg General Hospital Staff on Jan. 7th., on the eve of his marriage Dr. S. W. Prowse was presented with a silver tankard and also a pair of silver candlesticks for Mrs. Fairbairn the bride-to-be. The address was read by Dr. E. W. Montgomery. Dr. Prowse and Mrs. Fairbairn were married quietly on Jan. 8 and left for an extended trip to California. Mrs. Fairbairn is a sister of Dr. C. H. Aylen (Man. 1915) who is now practicing at Puyallup, Wash.

A quiet wedding was solemnized at Knox Church, Dec. 31 by Prof. F. W. Kerr, when Mary E. Martin superintendent of nurses of the Winnipeg General Hospital, was united in marriage to Hertford Cooper Champ, of Montreal. Mr. and Mrs. Champ left for the South on a short trip, en route to their home in Montreal.

The 1926 Gordon Bell Memorial Lecture is to be given on the evening of April 9 by Dr. Oscar Klotz. Professor of Pathology, University of Toronto. This is the outstanding medical event of the year in Winnipeg.

ALBERTA

Dr. K. I. Murray, who has been practicing in Raymond for several years, is now taking post-graduate work in Toronto. He will resume practice elsewhere than in Raymond.

Dr. E. L. Connor of Lethbridge, who has been spending several months in post graduate studies in Europe, chiefly in Vienna, has returned to Canada and is now studying in Montreal.

Dr. P. M. Campbell of Lethbridge, is spending the winter months in Victoria, B. C. where he hopes

to enjoy to the full the balmy sea breezes, as well as play his favorite game of golf, during all his waking hours of leisure.

Dr. J. K. Bigelow has located in Taber.

Dr. D. R. Fowler, a recent graduate of McGill University, has settled in Magrath where he will practice.

Dr. A. M. Carlyle of Lake Saskatoon has lately been taking post graduate work at the Sick Children's Hospital, Toronto.

Dr. W. D. McPhail of Winnipeg, has settled in Oyen.

Dr. J. H. Egbert, formerly of Lougheed, has moved to Halkirk, where he has taken over the practice of Dr. Welsh, who recently left for the state of Oregon, where he will practice in future.

Dr. A. B. Wickware has removed from Elnora to Huxley.

Dr. A. E. Wickens has returned to Sedgewick from the State of Washington and has taken over the practice which he disposed of some time ago to Dr. A Ferguson. The latter has gone to England with the intention of engaging in Panel practice.

Dr. N. J. Minnish, until a short time ago, a member of the Medical Department of Alberta University, has commenced practicing at Battleford, Saskatchewan.

Dr. F. W. Gershaw, of Medicine Hat, is now in Ottawa attending the session of Parliament.

At the December elections for the College of Physicians and Surgeons, the following members were elected to the Council for the ensuing term of office, viz:—Dr. W. G. Anderson for the Medicine Hat district; Dr. R. Parsons for the Red Deer District, Dr. A. E. Archer for the Lamont—Peace River District; Dr. W. A. Wilson for the Edmonton District. The four former were re-elected.

According to the associate secretary, Mr. W. G. Hunt, of the Alberta Medical Association, much interest has been taken by members of the profession throughout the province, relative to the question of extra mural post graduate work under the recent grant to the Canadian Medical Association. A number have volunteered to assist in this work.

Dr. W. H. McGuffin of Calgary, has returned from the annual meeting of the Radiological Society of North America, held in Cleveland, Ohio, in which organization he held the office of first vice-president. He had the honour of presiding at several of the general meetings. Dr. McGuffin is President of the Canadian Radiological Society for the current year. Both of these honours are well deserved and bear testimony not alone to his high repute as a Radiologist, but also to the esteem in which he is held by the members of these scientific bodies.

The Hon. George Hoadley, Minister of Agriculture and of Public Health, in the Farmers' Government, addressed the members of the Calgary Medical Society on January 5th on the subject of some proposed legislative health measures. Following the cool reception of his remarks at the banquet at Edmonton Academy of Medicine, he stated that he wished to set himself right in the minds of the medical profession and this was the main reason for asking permission to give this address.

Dr. John Jackson has resumed practise in Edmonton after an absence of fifteen months in London, Vienna and Prague, where he was engaged in post-graduate work. Dr. Jackson purposes devoting his time mainly to the specialty of surgery.

In the January number of the *Journal* two of the proposed measures were briefly alluded to. According to the Hon. Mr. Hoadley no less than five different provisions will constitute the substance of this legislation, viz:

1. The appointment of an appeal board of laymen who will deal with disciplinary questions of the medical, legal and dental professions which have been passed upon by the administrative bodies, or any of these orgainzations in which appeal is asked for. The decision of the Board will be final and will do away with a Supreme Court action.

2. The appointment of a full time coroner who will investigate only deaths following operations.

3. Any physician styling himself a "specialist" in any branch of medicine or surgery will have to substantiate his claims.

4. Since there are too many surgical operations, means will be taken to curtail the number.

5. Provision will be made to prevent fee-splitting.

From the lively discussion which took place at the meeting, it is evident that some of the measures will be warmly disputed.

The appointment of a board of laymen whose ruling will be supreme and who will hold sway over the Council of the College of Physicians and Surgeons, bodes not well for the future welfare and prestige of the profession in this province.

In what manner surgical operations will be lessened this representative of the Government did not attempt to enlighten his auditors, nor did he say how the pernicious practice of fee-splitting will be done away with.

"Coming events cast their shadows before" and in this connection those who are well informed consider these proposed enactments to be purely political tactics and a bid for a return to power. Of a certainty this betokens a Machiavellian type of state craft and a Rabellaisian type of humour. F. E. LEARMONTH

BRITISH COLUMBIA

A meeting of the Fraser Valley Medical Society was held at New Westminster on January 7th, when a good attendance of members listened with great interest to Drs. D. J. Millar, J. Nay and G. B. Murphy on Workmen's Compensation matters. Dr. Millar dealt principally with the Act, showing how the employer and employee are benefited. Dr. Murphy dealt with specific cases and explained how the Board acts and what happens when a workman is injured and reports begin to come in. Dr. Nay took up the subjects of strained back, hernia, and neurasthenia. Dr. G. T. Wilson, President of the local Society, was chairman.

Dr. W. B. Clarke has relinquished his practice at Surf Inlet and has been succeeded by Dr. H. C. McKenzie.

Dr. E. W. Ewart left Vancouver in the latter part

of December, to act as assistant to Dr. Maxwell, of Ladysmith.

Dr. H. B. Rogers of Chemainus, B. C., President of the No. 6 District Medical Society, left on December 12th, for a well earned month's vacation.

Dr. G. W. Sinclair of New Westminster is at present a patient in the Vancouver General Hospital. His many friends wish him a speedy recovery.

A meeting of the local members of the B. C. Medical Association Executive was held on January 8th, Dr. W. A. Clarke, Vice President, presiding. A number of important matters were dealt with. The Secretary-Treasurer, in speaking briefly on the work accomplished during 1925, reported a substantial balance at the Bank, and a gratifying increase in paid up membership over 1924.

In reviewing the work of the Executive Secretary's office he stated that during the year, 34 locum tenens had been supplied, 22 permanent positions filled, and three Government grants obtained.

Reports from Dr. T. H. Lennie, Chairman of the Industrial Service Committee, and Dr. Neil M. McNeill, Chairman of the Publicity & Educational Committee, disclosed the great amount of work done by these Committees during the last few months.

For the benefit of those doctors who contemplate attending the Annual Meeting of the Canadian Medical Association, at Victoria, next June, it may be stated that membership in the Canadian Medical Association, is contingent upon membership in the Provincial Association.

The Victoria Medical Society had as its Luncheon guest on December 31st, at the Empress Hotel, Dr. Mewburn, Professor of Surgery at the Medical Faculty of the University at Edmonton, Alberta. The privilege of attending such a pleasing function was appreciated by all, including Dr. Mewburn, who, in a short racy talk (couched in correct English of which he has been acknowledged the perfect exponent) told stories of the old days at Taplow, when he and his confreres at the Duchess of Connaught Red Cross Hospital, achieved such repute for good works. Dr. Mewburn nearly admitted that Taplow had earned some recognition as a War time unit, but modestly passed the bouquets to his coworkers there. Dr. Thomas McPherson, Vice President of Victoria Medical Society; Dr. J. W. Lennox, the President; Colonel Lorne Drum and Colonel David Donald were reminiscent of those days when Colonel Mewburn was helping Canada to make history. It was indeed a pleasure to entertain such a genial guest and a privilege to honour one whose name was so well known to the medical corps in those years of War.

The January Meeting of the Victoria Medical Society was well attended. Dr. John H. Moore of Victoria, read a paper dealing with the newer conceptions and treatment of "Nephritis." This paper was much appreciated and was followed by a discussion led by Drs. Stuart, Kenning, Leeder and Ridewood. Dr. Kenning had done considerable work along the lines described and added to the details of Dr. Moore's paper.

A general Meeting of all Sub-Committees of the Local Executive to decide on arrangements for 1926 C.M.A. Meeting was held. Dr. Forrest Leeder presiding. Things are all moving towards a successful meeting in Victoria in June of the Canadian Medical Association.

Their many friends in the East will be interested to hear of the appointment of Dr. Wallace Wilson, Dr. Lyall Hodgins and Dr. G. F. Strong to the visiting staff of the Vancouver General Hospital, on the medical side. The appointment is for three years.

We are very sorry to report that Dr. Oliver S. Large met with a very serious accident shortly before Christmas when the automobile in which he was riding crashed into a street car. Dr. Large sustained a fracture of the sternum and several very severe cuts about the face. He is still confined to bed but we understand he is progressing favourably.

Dr. Fred Robertson left on Christmas Day for Ontario to visit his old home there, after which he will proceed to New York for post graduate study.

Dr. G. F. Strong gave a very interesting paper on "Cardiac Pain" at a special meeting of the Vancouver Medical Association held on January 5th. An excellent discussion followed the reading of Dr. Strong's paper

At a meeting of the Vancouver Medical Association on December 10th the medical officers of the Workmen's Compensation Board in Vancouver, Drs. D. J. Millar, J. Nay and G. B. Murphy, explained the workings of the medical activities of the Board in the Province of B. C. An account of this meeting appears in the January number of the Vancouver Medical Association Bulletin.

Owing to the Canadian Medical Association meeting at Victoria in June, this year's Summer School Clinics of the V. M. Association will be held in the first week of September.

J. E. CAMPBELL

UNITED STATES

Dr. Arthur Macdonald, the Congressional Apartments, Washington, D. C., writes that the bill below has been endorsed by the leading medical, legal and religious organizations of the United States. It has been twice reported on favourably by the Judiciary Committees of both Houses of Congress, but failed of passage through delay. Dr. MacDonald thinks it high time that a rigid scientific study of the individuals producing these evils be inaugurated by our Government. The proposition is to spend $110,000 per annum to combat by the latest methods known to science, this annual drain upon the American people.

A Bill to Establish a Laboratory for the Study of the Abnormal Classes.—*Be it enacted by the Senate and House of Representatives of the United States of America assembled.*

That there be established a laboratory in the Department of ———— for the study of the abnormal classes, and the work shall include both laboratory investigations and the collection of sociological and pathological data, especially such as may be found in the institutions for the insane, dependent, defective and delinquent classes.

Section 1. That said laboratory and work shall be in charge of a director, who shall be appointed by the President, by and with the advice and consent of the Senate, and shall receive a salary of $7,500 per annum.

Section 2. For the aid of the director, there shall be appointed one anthropologist, one criminologist, one psychologist, one alienist, one neurologist, and one statistician, who shall be a mathematician, each at a salary of $5,000 per annum, one translator at $2,500 per annum, six stenographers and typewriters each at $2,000 per

Nutrition in Infancy

Virol contains : Bone Marrow, Beef fat, Malt extract, Lemon Juice and Salts of Lime and Iron.

Free samples will gladly be supplied to medical men on request.

Virol supplies all classes of body-building material.

It restores the balance of the diet by supplying those essential food elements so often lacking in ordinary diet during the age of growth.

Its vitamin content has been investigated in the Bio-Chemical Laboratories of the University of Cambridge, whose report states that " the vitamins are present in the manufactured article as it reaches the public."

The valuable constituents of Virol, and especially the fat soluble A, are presented in a form so palatable and so easily assimilated that the weakest digestions are not disturbed.

Medical men will realise that this is often the determining factor in the dieting of malnutrition and wasting conditions, and with ill-developed children.

VIROL Builds up weak constitutions.

VIROL

VIROL is used in thousands of Infant Clinics in Great Britain.

VIROL LTD., HANGER LANE, EALING, LONDON, W.5.

Sole Importers: Bovril Limited, 6201 Park Avenue, Montreal
Sales Agent: Harold F. Ritchie & Co., 10 McCaul St., Toronto

annum, and three clerks each at $1,800 per annum, and three messengers each at $900 per annum.

Section 3. That the director and specialists, if necessary for the proper discharge of their duties, may place themselves in communication with state and municipal and other officials of this and other countries.

Section 4. That for the proper equipment of and carrying on the work of said laboratory, the temporary employment of specialists and other help, the purchase of instruments of precision, books and periodicals, the printing of bulletins and for travelling expenses and subsistence there is hereby authorized to be appropriated out of any money in the Treasury not otherwise appropriated the sum of $50,000, or so much thereof as may be required.

Section 5. That no appointment to said laboratory can be made, unless the appointee cannot be removed, except for cause.

Section 6. That the final purpose of all investigations made by this laboratory shall be the prevention and lessening of social evils through knowledge gained by the scientific study of their causes.

Book Reviews

Text-Book of Pathology. Francis Delafield, M.D., LL.D., and T. Mitchell Prudden, M.D., LL.D. Thirteenth edition, revised. 1354 pages, 810 illustrations, eighteen full page plates. Price $10.00. William Wood and Company, 51 Fifth Avenue, New York, 1925.

When a text-book has reached its thirteenth edition it calls for little comment from the reviewer. Delafield and Prudden is one of the best established text-books of pathology in the English language, and it is kept thoroughly up to date by Dr. F. C. Wood. Two of its most commendable features are its completeness and its references. For a book of moderate size it is remarkable how seldom one consults it in vain. At the foot of almost every page references are to be found, and these as a rule are extremely full and cover the subject completely. Little new matter is included in the present edition, for in Dr. Wood's opinion few contributions have been made to morphological pathology during the last five years of sufficient importance to justify their inclusion.

WILLIAM BOYD

Clinical Laboratory Medicine. Henry H. Feinblatt, M.D. and Arnold H. Eggerth, A.B., A.M. 424 pages, 89 illustrations. Price $5.00. Wm. Wood & Co., 51 Fifth Avenue, New York, 1925.

The authors state that their aim has been to describe laboratory diagnostic procedures as they are presented to a laboratory worker in a general hospital, and to discuss their clinical significance and applications. An outline is given of the usual laboratory methods for examination of the blood, urine, gastric contents, spinal fluid and other secretions and excretions. Such procedures include the necessary chemical and bacteriological methods requisite and applicable for clinical laboratory diagnosis and a selection has been made of those methods which the authors have found useful in their own work. The applications of these methods as aids in diagnosis and treatment are shortly discussed in connection with each section and frequent references are made to original articles, should fuller details of methods and their significance be desired.

This book should prove useful for senior students, hospital internes and to that increasing group of men in practice who are equipped to employ these methods. The reviewer believes that a judicious selection of methods has been presented, and these have been given with sufficient fullness and clearness as to be readily followed.

W. T. CONNELL

Selected Papers, Surgical and Pathological. F. T. Paul, D.Sc., F.R.C.S. (Eng.) 284 pages, 23 plates. Price 15s. net. Baillière, Tindall & Cox, 8 Henrietta St., Convent Garden, London, 1925.

This volume represents the major contributions of Mr. F. T. Paul to surgical and pathological literature, and has been issued, as stated in the preface, by his professional colleagues in the city of Liverpool, as a token of respect and affection on the occasion of Mr. Paul's seventy-fifth birthday.

The separate addresses are arranged in chronological order, 1881-1923, and so form an interesting picture of progress during the author's most active working years.

The pathological papers include a wide range of subjects and present the results of his researches in the morbid histology of such varying conditions as rodent ulcer, chronic mastitis, syphilis, and epithelioma of the lip.

Mr. Paul's chief claim to fame has been due to his work on intestinal surgery, and one of the most interesting chapters of the book is that in which he describes in order, his earliest series of cases requiring partial excision of the lower colon. In this chapter he indicates the stages through which he developed his technique of extra-peritoneal colectomy, a method which is followed, with very slight modifications, by most surgeons to-day. It is unfortunate that he has not received due credit for this very original work; it would certainly appear that he had made use of the main principles of the procedure some years before von Mikulicz, whose name—on this continent at any rate—the operation most frequently bears.

Throughout the book is to be found the evidence of the careful observation, intensive study and wise judgment that placed Mr. Paul among the leaders of the profession at the close of the last century.

N. S. SHENSTONE

The Mechanical and Graphic Registration of the Heart Beat. Sir Thomas Lewis, M.D., F.R.S., F.R.C.P., D.Sc., C.B.E. Third edition Shaw & Sons, Ltd., Fetter Lane, Fleet Street, E.C. 4., 1925.

This new edition of Lewis' work shows expansion in many respects since the last which issued in 1920. It contains upward of one hundred more pages, nearly fifty more illustrations and about two hundred new items in its bibliography. Even the title page has been improved. In the second edition it was Thomas Lewis; now it is Sir Thomas Lewis, C.B.E.

The preface, however, is quite familiar. It contains the same old vigorous plea for the rigid conditions of scientific research. Those who have had to be content chiefly with the *art* of medicine might wish that he had put his argument less bluntly. After all the book itself is the best exponent of the case which he presents for scientific methods. It is the fruit of nearly twenty years of laborious investigation in the field of electrocardiography, and adds not only to the science, but also to the art of medicine.

Lewis has the knack of writing lucidly on a somewhat technical subject and the busy doctor will have no difficulty in following him step by step through the in-

Ayerst

COD LIVER OIL

(Carbonated)

A scientifically prepared product containing not less than
400 VITAMIN "A" UNITS PER GRAM
by technique adopted in latest revision of U.S.P. (official from January 1, 1926)

PLEASANT TO TAKE

Specify "AYERST"

A NEWFOUNDLAND OIL BIOLOGICALLY ASSAYED
ensures Maximum Cod Liver Oil Therapy

In bottles of four and sixteen ounces

"CALCIUM A"

A capsule containing approximately 275 Vitamin "A" units associated with Calcium in a suitable form for metabolism.

The metabolic influence of Cod Liver Oil in the presence of free fatty acids and glycerols, probably accounts for the clinical results in neuroses and tetany, through the restoration of the normal balance of the sedative and irritating salts of the body.

DOSES:—One or two capsules three times daily.

MADE IN CANADA

Ayerst, McKenna & Harrison Limited

Pharmaceutical Chemists - - - - MONTREAL, Canada

Splendid Golfing facilities also Bowling, Riding, Tennis and all outdoor games

Especially suitable for Convalescence from Illness, Rheumatic Conditions and Chronic Fatigue

THE PRESTON SPRINGS HOTEL, - PRESTON, ONT.

Attention is directed to the excellent facilities offered by the Preston Springs for the entertainment of guests, requiring Electro and Hydro Therapeutics under experienced medical supervision.

Write to Preston Springs Hotel, Preston, Ontario, for rates and booklet

trieacies of the electrocardiogram. The latter is much more fascinating than the cross-word puzzle and infinitely more profitable, since it gives new insight into the work of the heart in health and disease. To-day the electrocardiogram is an invaluable aid in determining the condition of the myocardium and the sooner this is recognized by the general practitioner, the better.

The increased size of this edition is largely due to the addition of several chapters dealing with the nature of auricular flutter and fibrillation, and a discussion of the theory of circus movement in relation to these conditions. Considerable new material is added dealing with the action of drugs on the heart.

GEORGE S. YOUNG

Development of Our Knowledge of Tuberculosis. Lawrence E. Flick, M.D., LL.D. 783 pages. Price $7.50 Philadelphia, 1925.

The author, who has been prominently identified with the progress of antituberculosis work in the United States, has undertaken to write the story of the progress of our scientific knowledge of tuberculosis down to the beginning of the present century. His enthusiasm has carried him so far as to write "now that it (tuberculosis) is understood, and its mysteries cleared up, and the way paved for its extermination, the story of how this was done is of gripping interest." Much of the story is told by extensive quotation from those workers who have written of their researches and observations. Few of those who are interested in tuberculosis have access to the works of Hippocrates, Galen, Sylvius, Morton, Sydenham, Baillie, Bayle, Laennec, Louis, Villemin, Virchow and Koch, and even where available, those of many foreign authors who have not been translated into English except in part. Many workers will welcome Flick's attempt to choose for them, from the countless works and articles on tuberculosis, those which he considers to have played the most important part in the progress of our knowledge. For example there are some six pages from Sylvius (1614-1672) who gave us the term tubercule; from the Phthisiologia of Morton (1689) which summed up the knowledge of his time and was in great repute at home and abroad for a century there are seventy pages, and to Villemin's most important experimental work he devotes one hundred and thirty pages principally in the author's own words. Much of Koch's original and historical communication is given in full. A few misprints mar the work; they are relatively unimportant, as when Littré appears repeatedly in the foot notes as Littre, yet it really hurts to find in such a praiseworthy volume, that the name of the great Laennec is scarcely to be recognized as it appears at the head of the chapter devoted to him. There is no reference to the pioneer work of Bodington nor is there any reference to the development of antituberculosis work in Canada.

J. H. ELLIOTT

Medical Bacteriology and Protozoology. W. R. Logan, M.D., F.R.C.P.E. Third edition. 178 pages. Price 3/- net. E. & S. Livingstone, 16 Teviot Place, Edinburgh, 1925.

What is the special virtue in writing a student's text-book in the catechism fashion, i.e., in the form of question and answer? For a virtue there apparently is, vide the wide popularity of the catechism series of medical books published by Messrs E. & S. Livingstone of Edinburgh. It would appear to lie in this, that when a teacher undertakes to explain what something means in response to a direct question he does so in a simpler way than when he is writing a book in the ordinary fashion. The language employed is less technical and the reply is obtained in what may be termed tabloid form. In any case such books undoubtedly serve a purpose.

The present volume is excellent in every way. The main facts relating to bacterial growth and mode of action, sterilization, staining methods, etc., are dealt with adequately. More might be said, we venture to think, about methods of obtaining material for examination. Only a page is given to this matter the importance of which for the student, hospital intern, and practising doctor cannot be exaggerated.

Public health bacteriology,—bacteria in air, milk, water, etc., are all dealt with shortly and usefully. The Wassermann reaction is explained more simply and clearly than we can recall having seen it before elsewhere. As regards other serological tests in syphilis the Sachs-George test is explained but we think that the Kahn precipitation test might have been mentioned.

Scarlet fever is mentioned as probably a streptococcal condition. We should have thought that the statement could be made now with more confidence; also the Dick test in the diagnosis of scarlet fever might be given a place alongside the Schick in diphtheria.

The portion of the book dealing with protozoology is particularly good and up-to-date.

JAMES MILLER

Minor Surgery. Lionel R. Fifield, F.R.C.S. 431 pages, 273 illustrations. Price 12/6 net. H. K. Lewis & Co., 136 Gower St., London, 1925.

The substance of this book is an account of the methods and apparatus used for minor surgical cases in the London Hospital, London. The space given to the various sections is relative to their importance, especially that devoted to fractures and infections of the hand. A section on anæsthetics and their choice is included at the end.

There are many good books already written upon this subject and we cannot feel certain in our minds that the competition has been overcome by the author. It is however, admittedly for students and practitioners and contains much that is useful. In the section of fractures we consider that the use of plaster of Paris has hardly had an adequate place allotted to it. The illustrations are clear and text well written.

L. J. AUSTIN

A Text-Book of Medical Diagnosis. James M. Anders, M.D., Ph.D., LL.D. Third edition, 1421 pages, 555 illustrations. Price $13.00. W. B. Saunders Co., London and Philadephia: McAinsh & Co., Toronto, 1925.

It is about thirteen years since we had the pleasure of reviewing the first edition of this text-book of medical diagnosis. It was reprinted the following year. A revision appeared three years after the first. Space does not permit much detailed reference to the new sections which have been added nor to those which have been thoroughly revised. The great advances that have taken place in blood chemistry, in serology, in the recognition of endocrine disturbances, diseases of the blood and blood forming tissues and organs, functional tests, and in the recognition of diseases which have only appeared in our nomenclature of the past ten or fifteen years; all have received due attention. Even with careful editing of the former text the additions have increased the volume by about 225 pages. One hundred additional illustrations add considerably to the value of the work. It is a text-book which gives concisely the etiology, predisposing and exciting causes of medical diseases with their symptomatology, diagnosis and differential diagnosis. Very careful consideration is given to laboratory methods of diagnosis in addition to bedside methods. For example, the section on the blood is preceded by forty-four pages devoted to laboratory examination of the blood. In this is included the preparation of slides and cover glasses, collection of blood, study of fresh blood, estimation of coagulation, specific gravity, hæmoglobin, spectroscopic study, cell counting, cryoscopy,

TABLET
GASTRIC ALKALINE

Recommended as a neutralizing agent in Hyperacidity, and most valuable as a treatment in the early stages of suspected Gastric or Duodenal Ulcer, also for post operative and other vomiting.

These tablets may be allowed to disintegrate in a small quantity of water and administered in the form of a flaky suspension.

Uniform dosage is assured through accurate subdivision and thorough trituration.

Tablet No. 241 "*Frosst*"
Gastric Alkaline

℞
Sodium Bicarb., ... grs. v.
Bismuth Subcarb., .. grs. v.
Magnesia Calcined. .. grs. v.
Oil Peppermint, ... q.s.
DOSE—1 to 4 Tablets as indicated. ÷

The attention of the profession is directed to this tablet, now freely prescribed, which should prove of interest to every physician and surgeon.

Charles E. Frosst & Co. - MONTREAL, CANADA

Manufacturing Pharmacists since 1899

DURING AND AFTER A SIEGE OF

Grippe, Influenza or Pneumonia

There is nothing better as a Recuperative than a course of

ANGIER'S EMULSION

It will clear up the catarrhal condition, whether of the respiratory or digestive organs. It will restore tone to all the digestive functions, maintain proper elimination, and greatly improve assimilation and nutrition. It will overcome nervous depression and debility. All of these good effects are accomplished naturally and easily without entailing any extra work upon the weak or overburdened system.

Free trial bottles sent on request

Canadian Distributors:

Wingate Chemical Company, Ltd.
Montreal, Canada

Angier Chemical Company
Boston 34, Mass.

blood chemistry, serum diagnosis, agglutination and precipitation tests, complement fixation, blood grouping and staining methods. It has been brought up-to-date in almost every section, yet a book under date of November 1925 should have some reference to recent work on the parathyroid hormone and the more recent work on the hormone of the pancreas.

J. H. ELLIOTT

Text-Book of Orthopoedic Surgery. For Students of Medicine. James Warren Sever, M.D. 353 pages, illustrated. The Macmillan Co. of Canada, Toronto, 1925.

This book presents to the medical student orthopoedic surgery in simple terms.

Congenital deformities are presented first and their early treatment in emphasized, also the prognosis of the different types is mentioned.

The diagnosis and treatment of scoliosis by means of gymnastics and plaster corrective jackets is presented. It is mentioned that in severe scoliosis the treatment may take two years; but nothing is mentioned in reference to those cases which do not improve after two years of treatment, and in which you cannot persuade the parents to carry on further with gymnastic treatment. I think the Hibbs operation has justified itself in this type of case and should be mentioned as the treatment indicated after gymnastics had been tried and failed to produce the desired results.

The chapter on tuberculosis of joints is concise and most interesting reading. The different joints are considered as to prognosis and treatment. Conservative treatment is advocated in every case.

The different types of paralysis form an interesting chapter. The standard and accepted procedures of treatment are the ones mentioned. They have stood the tests of time; numerous transplantations of small tendons having gone out of use. Obstetrical paralysis is also taken up in this chapter, the conditions peculiarly favourable for the production of such an injury and the early and late treatment given are excellent.

The chapters on painful and irritable backs, arthritis, bone affections, internal derangements of the knee, special fractures, recurrent dislocation of the shoulder joint, flat feet, are uniformly good.

The bed and nursing care of orthopoedic cases, also the application of plaster and apparatus is particularly emphasized and well illustrated. This alone would highly recommend this book as being of value to the general practitioner as well as to the medical student.

E. V. HOGAN

The Clinical Study and Treatment of Sick Children. John Thomson, M.D., LL.D., F.R.C.P. (Ed.). Fourth edition. 912 pages, 258 illustrations. Price 30/- net. Oliver & Boyd, Tweeddale Court, Edinburgh, 1925.

This is now the fourth edition, revised and enlarged, of this very readable book, which, as its name implies, is essentially a clinical study. It is well printed and profusely illustrated with good photographs. The arrangement of the material and of the table of contents is excellent. Of particular interest are some of the facts in the section on growth and development of the infant with the section on home care of the defective child, a point which is not stressed in most paedriatic text-books of American origin. The author lays particular stress on certain phenomena connected with teething and of the effect of carbohydrate on the formation and preservation of the teeth. The treatment of otitis media by dry methods and the instillation of phenol and glycerine drops is given. Under the artificial feeding of infants with cows' milk the use of cream and top milk mixtures and alkalis are advocated. The author states "so long as the control of the milk supply is so entirely inefficient as it is at present in this country (Great Britain) it will be necessary to recommend that fresh dairy milk be boiled before it is used." The uses of caloric estimations of feedings are mentioned. However, the use of buttermilk and lactic acid milk is discussed in the same number of lines as is the use of whey and asses' milk in infant feeding. Finkelstein's classification of nutritional disorders in infancy is discussed; and under the signs of nutritional disorders it is stated that "when a child has got too much of one of the elements of the food and the line of tolerance is passed very characteristic symptoms appear," and, "that in most food disorders the differences in the clinical features depend entirely on the differences in the feeding, and do not indicate the presence of different diseases." The separation of chronic intestinal indigestion from so-called cœliac disease is not in common use on this continent. Castor oil is suggested in the latter disease in 5 minim doses thrice daily. The discussion of congenital hypertrophic pyloric stenosis is excellent, and is well illustrated by good photographs. The section on the central nervous system contains a discussion of the various types of amentia. At the end of the book there are several appendices containing methods of case taking, periods of incubation and the infectiveness of the infectious diseases, a discussion on allergy, certain instructions to mothers, and some formulæ in use in the author's practice, in the treatment of some of the common diseases of childhood, are also appended.

The book on the whole makes most interesting reading and forms a worthy addition to the library of either the practitioner interested in diseases of children or of the paediastrist.

R. R. STRUTHERS

Midwifery. Part II. Third edition. 70 pages. Price 1/6d. net. E. & S. Livingstone, 16 Teviot Place, Edinburgh, 1925.

This is a short concise questionnaire on the abnormal possibilities in obstetrics. If used merely as a compend to a larger volume it might prove a valuable aid for examination purposes.

Published as it is by an English firm, many of the manœuvres are described as carried out in the left lateral position instead of in the lithotomy; and measurements are given in inches instead of centimeters. Not everyone will agree that a baby should be nursed every two hours, or that a curettage done on a patient, who has had repeated abortions, will check the tendency to miscarry.

But these are minor criticisms. On the whole the teaching is conservative and sound, and covers the main abnormalities and their treatment.

ELEANOR PERCIVAL

Diseases of the New-Born. By August Ritter von Reuss. 625 pages. John Bale, Son & Danielsson, Ltd., Oxford House, London, W.1, 1924.

The usefulness of this book, which is the most comprehensive work available on the subject, suffers considerably from lack of revision. It was written eleven years ago. Many important advances have been made in our knowledge of the etiology and treatment of diseases of the new-born since 1914. As an example the theory advanced by von Reuss that thymic death is the result of suffocation due to pressure of the enlarged thymus on the trachea is now known to be erroneous. No mention is made, naturally, of the spectacular results recently obtained by Roentgen-ray treatment of these cases. The author's conception of "Hæmorrhagic disease of the new-born" is not the same as the present conception of the disease. In regard to the treatment of hæmorrhagic disease, although the author does mention transfusion of the blood, still it is obvious that he did not recognize

the specificity of this treatment. Also the recent life saving treatment of erysipelas by transfusion is not mentioned. These are only a few examples which serve to illustrate the manner in which this book suffers from not having been brought up-to-date.

Many of the subjects considered are more of academic than practical interest. The space allotted to some of the commonly encountered conditions is not comparable to their importance from the standpoint of the practitioner. As an example "congenital stenosis of the pylorus" is allotted only two and a half pages, while the discussion of "Hirschsprung's disease" which is an extremely uncommon condition occupies nearly five pages. On the whole however this work is thorough and comprehensive. Although it can not be recommended to students or practitioners, who have not some knowledge of the recent advances in this field, it is still a most valuable and useful book. F. F. TISDALL

Alcohol in Medical Practice. C. C. Weeks, M.R.C.S., L.R.C.P. 186 pages Price 3/6 net. H. K. Lewis & Co., 28 Gower Place, London, W.C.1, 1925

This small work, which is dedicated to Victor Horsley, Mary Sturge and Sims Woodhead, presents the alcohol question in essence and deals with it in the trenchant manner dear to the heart of the reformer.

The effect of alcohol is considered in medicine generally, in circulatory diseases, in pneumonia, as a food, in diseases of children and in some surgical conditions. In all these conditions it is found to be useless, if not harmful.

One-third of the book is devoted to appendices, where, in tabular form, the waning use of spirituous liquor in various hospitals within and without the British Empire is illustrated.

The final chapter is headed "Evolution of Medical Opinion" presumably concerning the alcohol problem from the year 1725 down to the present day.

For those anxious to collect material for propaganda this book will be found an excellent storehouse. As a scientific treatise on the use of a therapeutic measure it may be held to be lacking in certain particulars. J. M. PATTERSON

The Diabetic Life. Its Control by Diet and Insulin. By R. D. Lawrence, M.A., M.D. 161 pages, 10 illustrations. The Macmillan Co. of Canada, Toronto, 1925.

The author very clearly summarizes our present day knowledge of diabetes. He shows how the work of Allen and the brilliant discovery of insulin by Banting have placed the treatment of diabetes on an entirely new and highly scientific footing. The task Dr. Lawrence has undertaken is to simplify the details of treatment so that it can be readily but accurately carried out by the general practitioner.

His first step in the dietetic management is by what he calls the line-ration scheme which is simple enough. This is succeeded by a five-gram diet scheme which, as the author states, "in theory it is ideal and succeeds most admirably."

The book is written for the patient as well as the doctor, and I can see nothing but good from its being read by sufferers from this disease, for hearty co-operation is essential to successful treatment.

It instructs the diabetic how a life endurable, even of much enjoyment and of many years duration, can be achieved. It cannot fail also to increase the public's respect for what science is doing to combat disease.

URASAL

Indicated in the treatment of High Blood Pressure.

Ask for Literature—Free package to Physicians.

FRANK W. HORNER, LIMITED

"The-All-Canadian-House"

TORONTO - MONTREAL - WINNIPEG - VANCOUVER

The author has compiled a very readable compact manual of 161 pages which will be found of great practical value to physicians and patients. W. D KEITH

Diseases of the Nose, Throat and Ear. William Lincoln Ballenger, M.D. Fifth edition, revised. 1080 pages, 551 illustrations and 32 plates. Price $10.00. Lea & Febiger, Philadelphia and New York, 1925.

This well known work has been revised and several parts rewritten. There is a definite strain of conservatism througout the entire operative proceedures described. This is most commendable and a refreshing change from much of the recent oto-laryngological literature. The indications for the essential points that should guide one in determining the choice of any special type of operative technique is given in detail. Constructive criticism is helpful and while there is much in the book that is commendable, the reviewer thinks attention might be directed to the following points:

While the surgery of the ethmoid has been well covered, one fails to find reference to Howarth's operation for chronic frontal and ethmoidal suppuration. Illustrations of this operation as well as that of Sluders' might be better than those given which now are rarely employed by any one. In this connection one wonders if too much space has not been given to septal operations now long since given up.

In cases of retropharyngeal abscess it is doubtful if the author will find many agreeing with him when he says all such cases should be opened by the internal (pharyngeal) route. In the chronic abscess due to cervical caries the external operation alone should be performed. In Ludwig's angina (acute-streptococcus cellulitis of the pharynx and neck) emphasis is laid on the local condition in the neck rather than on the danger of cardiac failure. It is a pleasure to find the author speaking of adhesions between the anterior pillar and the tonsil as a myth. The reviewer, has long since agreed with this, but does not recollect having seen it in any text book.

The chapters dealing with the tonsils are well written and the treatment recommended is on sound conservative lines. X-ray treatment in place of enucleation is condemned as it should be.

The chapter on the singing voice will be found very useful. One would like to see more space devoted to the diseases of the larynx, especially the palsies. Laryngectomy can hardly be well covered now without reference to the work of Tapia and McKenty.

The ear has been well covered but the author appears a little dogmatic in referring to the value of tuning fork tests. Labyrinthine surgery is made much clearer by many illustrations. The diagnosis of case of neurofibroma of the 8th nerve is not sufficiently exhaustive.

The book is a sound treatise on diseases of the nose, throat and ear, one the specialist and general practitioner will find easy to read; this is greatly enhanced by the excellence of the illustrations, clearness of type and quality of the paper. PERRY G. GOLDSMITH

What to do in Cases of Poisoning. William Murrell, M.D., F.R.C.P. 13th edition revised by P. Hamill, M.D., D.Sc., F.R.C.P. 276 pages (royal 32 mo.). Price 4/6 net. H. K. Lewis & Co., 28 Gower St., London, W.C.1, 1925.

This is a small book, evidently intended as a ready reference in cases of poisoning.

Some of the information it contains would be most useful in directing the proper line of treatment during the emergency and excitement of an acute poisoning. In regard to the remainder, keeping in mind the small size of the book, when one reads on page 229, "The chief causes of alcoholism are:—hereditary predisposition, unstable temperament, occupation or want of it, poverty, deficient food, bad ventilation, a monotonous life, chronic illness, sexual excesses and hysteria," one is inclined to say—"Piffle," but, when you arrive at the chapter on the morphine habit page 260, and read "In confirmed cases when the administration of the drug is in the hands of the patient, the following hints will prove of service."—the reader just does not say anything, nor is he interested in the hints, even though further directed that patients do better in an institution; he is lost in wonder if the author ever treated a case.

In spite of the thirteen editions, the book, in its present form, will probably never be popular in Canada. The size is difficult (four and three quarters by three inches) to retain alongside standard size medical books, and because insufficient interest is taken in our substitutes for intoxicants, methyl and wood alcohol are barely dealt with: tinned heat is not mentioned.

LEONARD MURRAY

Compend of Diseases of the Skin. Jay Frank Schamberg, A.B., M.D. Seventh edition revised. 316 pages, 119 illustrations. Price $2.00. P. Blakiston's Son & Co., Philadelphia, 1925.

This small book covers in a very brief way almost the whole field of dermatology. It will greatly assist the practitioner to diagnose a dermatological condition with which he may not be familiar and, used in conjunction with a more comprehensive work on the subject will be found very useful. It is easily read and contains some diagnostic charts and treatment suggestions.

There is a short chapter on syphilis with a good outline of modern treatment. HAROLD ORR

A Manual of Gynæcology. John Cooke Hirst, M.D., F.A.C.S. Second edition revised. 508 pages, 195 illustrations. Price $3.50. W. B. Saunders Co., London and Philadelphia McAinsh & Co., Toronto, 1925.

In Dr. J. C. Hirst's Manual of Gynæcology, the student or busy practitioner can readily obtain a practical working basis on which to fix his observations. It does not pretend to go into minute details but gives a systematic outline of methods suitable for use in teaching students, and the practitioner has presented to him in almost every condition, at least one method of treatment which experience has proven to be valuable. If the student will remember that its intention is only to point the way to more profound study, this type of presentation of the subject has its own value. This manual is as good as any of its kind we have seen, and this second edition has been brought up to date by including all important advances in gynæcology since the first edition appeared. The printing is good, the ilustrations numerous and clear-cut, and the letter press concise and effective. F. A. CLELAND

Student's Pocket Prescriber. David Mitchell Macdonald, M.D., F.R.C.P.E. Ninth edition. 223 pages. Price 1/- net. E. & S. Livingstone, 16 Teviot Place, Edinburgh, 1925.

This little volume contains some useful information for the medical student in regard to prescription writing. In addition to the usual posological table, Latin phrases, and tables of weights and measures, there are synonyms for drugs and preparations frequently used in practice, and an all too abbreviated list of diets indicated in certain pathological conditions. The greater part of the publication consists of formulæ grouped under the heading of diseases and this section requires a great deal of revision and expurgation. Such discarded treatments as the use of opiates in diabetes, arsenic in exopthalmic goitre, and belladonna with hot applications in appendicitis should find no place in a manual designed for the modern student.

KEITH GORDON